

VOLUME 210

NUMBER 3, PART 3

THE ASTROPHYSICAL JOURNAL

1976

ANNUAL AUTHOR AND SUBJECT INDEX

TO VOLUMES 203-210 PARTS 1 AND 2
AND
TO THE SUPPLEMENT SERIES
VOLUMES 30-33

Compiled by
Robert A. Fox
The Astrophysical Journal

PUBLISHED BY THE UNIVERSITY OF CHICAGO PRESS FOR
THE AMERICAN ASTRONOMICAL SOCIETY

Single Copy: \$5.00



VOLUME 210

NUMBER 3, PART 3

THE ASTROPHYSICAL JOURNAL

1976

ANNUAL AUTHOR AND SUBJECT INDEX

TO VOLUMES 203-210 PARTS 1 AND 2
AND
TO THE SUPPLEMENT SERIES
VOLUMES 30-33

Compiled by
Robert A. Fox
The Astrophysical Journal

PUBLISHED BY THE UNIVERSITY OF CHICAGO PRESS FOR
THE AMERICAN ASTRONOMICAL SOCIETY

© 1977 by The American Astronomical Society. All rights reserved.
Printed in U.S.A.

CONTENTS

	<i>Page</i>	<i>Fiche</i>
AUTHOR INDEX	1	1-A7
SUBJECT HEADINGS	69	1-G1
SUBJECT INDEX	73	1-G4



1976 ANNUAL INDEX

AUTHOR INDEX

- AARONSON, MARC. The 10 Micron Silicate Feature in Southern H II Regions. *S. Persson, Jay A. Frogel, and Marc Aaronson*. **208**, 753, 84-C13 (1976)
- ABGRALL, H. Quantum Effects in the Formation of CH⁺ by Radiative Association. *H. Abgrall, A. Giusti-Suzor, and E. Roueff*. **207**, L69, 62-F6 (1976)
- ABRAMOWICZ, MAREK A. Variational Analysis of Rotating Neutron Stars. *Marek A. Abramowicz and Robert V. Wagoner*. **204**, 896, 25-F9 (1976)
- ABT, HELMUT A. Editorial Policy Changes Necessitated by Continued Growth. *Helmut A. Abt*. **203**, 285, 5-A4 (1976)
- MK Morphology of a Group of Am Stars. *Helmut A. Abt and W. W. Morgan*. **205**, 446, 34-D9 (1976)
- MK Morphology of a Group of Am Stars: Addendum. *Helmut A. Abt and W. W. Morgan*. **209**, 961, 101-B12 (1976) (Orig. paper in **205**, 446, 34-D9)
- Multiplicity among Solar-Type Stars. *Helmut A. Abt and Saul G. Levy*. **30**, 273, 5-E1 (1976) (Abstr. in **204**, 313, 16-D10)
- ACTON, L. W. X-Ray Structure of the Puppis Supernova Remnant. *R. C. Catura and L. W. Acton*. **207**, L163, 72-B13 (1976)
- ACUNA, MARIO H. A Two-Region Model of the Solar Wind Including Azimuthal Velocity. *Mario H. Acuna and Y. C. Whang*. **203**, 720, 10-F7 (1976)
- ADELMAN, SAUL J. Are the Broad Continuous Absorption Features of Magnetic Peculiar A Stars Bound-free Discontinuities? *Saul J. Adelman and Pamela R. Wolken*. **207**, L59, 59-F8 (1976)
- Magnetic Fields and Diffusion Processes in Peculiar A Stars. II. Precession and the Oblique Rotator Model. *Steven N. Shore and Saul J. Adelman*. **209**, 816, 99-E13 (1976)
- AGRAWAL, P. C. Soft X-Rays from the Large Magellanic Cloud: Implications on the Origin of the Diffuse X-Ray Background. *K. S. Long, P. C. Agrawal, and G. P. Garmire*. **206**, 411, 48-F7 (1976)
- AGUIRRE, CECILIA. Emission-Line Galaxies and Quasars. II. The Classification Systems and List N1, Declination $\leq -27^\circ 5'$, Galactic Latitude $\geq +20^\circ$. *Malcolm G. Smith, Cecilia Aguirre, and Mario Zelman*. **32**, 217, 25-F1 (1976) (Abstr. in **208**, 955, 86-E4)
- AHMAD, I. A. Observations of 10.5 GHz Recombination Lines toward Orion A. *I. A. Ahmad*. **205**, 379, 33-F8 (1976)
- A Two-Component Model for the Orion A Carbon Radio Recombination Lines. *I. A. Ahmad*. **209**, 462, 94-D11 (1976)
- AIKMAN, G. C. L. A Survey of Peculiar and Metallic-lined A Stars for the Actinides. *Charles R. Cowley, G. C. L. Aikman, and M. R. Hartoog*. **206**, 196, 45-A10 (1976)
- The Radio-flaring Triple System b Persei. *Graham Hill, G. C. L. Aikman, Anne P. Cowley, C. T. Bolton, and J. C. Thomas*. **208**, 152, 75-E12 (1976)
- AIZENMAN, MORRIS L. The Equilibrium and Stability of Uniformly Rotating, Isothermal Gas Cylinders. *Carl J. Hansen, Morris L. Aizenman, and Randy L. Ross*. **207**, 736, 68-E1 (1976)
- ALEXANDER, M. E. Orbital Evolution of a Singly Condensed, Close Binary by Mass Loss from the Primary and by Accretion Drag on the Condensed Member. *M. E. Alexander, W. Y. Chau, and R. N. Henriksen*. **204**, 879, 25-E6 (1976)
- ALLEN, D. A. Emission-Line Stars in the Large Magellanic Cloud: Spectroscopy and Infrared Photometry. *D. A. Allen and I. S. Glass*. **210**, 666, 112-D11 (1976)
- ALLEN, DAVID A. The Near-Infrared Continua of Emission-Line Galaxies. *David A. Allen*. **207**, 367, 63-C1 (1976)
- ALLEN, MARK. Molecular Hydrogen in Interstellar Dark Clouds. *Mark Allen and G. Wilse Robinson*. **207**, 745, 68-E10 (1976)
- ALLER, L. H. A Spectrographic Survey of 21 Planetary Nebulae. *J. B. Kaler, L. H. Aller, and S. J. Czyzak*. **203**, 636, 9-G1 (1976)
- The Spectrum of NGC 7027. *J. B. Kaler, L. H. Aller, S. J. Czyzak, and H. W. Epps*. **31**, 163, 14-A2 (1976) (Abstr. in **206**, 343, 46-E11)
- ALLER, LAWRENCE H. Electron Densities in Gaseous Nebulae. *Lawrence H. Aller and Harland W. Epps*. **204**, 445, 19-C9 (1976)
- Electron Density Measurements in NGC 6720. *Lawrence H. Aller, Harland W. Epps, and S. J. Czyzak*. **205**, 798, 39-D9 (1976)
- ALLOIN, D. On the Number of Planetary Nebulae in our Galaxy. *D. Alloin, C. Cruz-González, and M. Peimbert*. **205**, 74, 28-G1 (1976)
- ALME, MARVIN L. A Possible Mechanism for Mass Transfer in X-Ray Binary Systems with OB Supergiant Companions. *Marvin L. Alme and James R. Wilson*. **210**, 233, 105-E4 (1976)
- ALTROCK, R. C. Physical Conditions in Granulation. *R. C. Altrock and S. Musman*. **203**, 533, 7-F10 (1976)
- ANDERHECK, C. DAVID. The H and K Lines of Ca II in the Nucleus and Bulge of M31. *Donald C. Morton and C. David Andereck*. **205**, 356, 33-D10 (1976)
- ANDEREGG, M. Infrared Line Emission from the Orion Nebula: Detection of [S III] (18.71 μ) and [O III] (88.35 μ). *J. -P. Baluteau, E. Bussolletti, M. Anderegg, A. F. M. Moorwood, and N. Coron*. **210**, L45, 106-E1 (1976)
- ANDERSON, CHRISTOPHER M. High-Dispersion Observations of Emission Lines in the Post-Nova HR Delphini. *J. S. Gallagher and Christopher M. Anderson*. **203**, 625, 9-F4 (1976)
- Zeeman Observations of the H α Region in BY Draconis. *Christopher M. Anderson, Lee W. Hartmann, and Bernard W. Bopp*. **204**, L51, 17-D9 (1976)
- ANDERSON, K. A. Characteristics of Cosmic X-Ray Bursts Observed with the OGO-5 Satellite. *S. R. Kane and K. A. Anderson*. **210**, 875, 114-F6 (1976)
- ANDERSON, LAWRENCE. On the Structure of Contact Binaries. I. The Contact Discontinuity. *Frank H. Shu, Stephen H. Lubow, and Lawrence Anderson*. **209**, 536, 95-C2 (1976)
- ANDERSON, T. G. The Microwave Spectrum of Hydrogen Isocyanide. *R. J. Saykally, P. G. Szanto, T. G. Anderson, and R. C. Woods*. **204**, L143, 27-C8 (1976)
- ANDERSON, THOMAS G. Laboratory Microwave Spectrum and Rest Frequencies of the N₂H⁺ Ion. *Richard J. Saykally,*

- Thomas A. Dixon, Thomas G. Anderson, Peter G. Szanto, and R. Claude Woods. **205**, L101, 37-D1 (1976)
- ANDREW, B. H. Spectra of Some Ohio Radio Sources: List V. M. R. Gearhart, J. D. Kraus, and B. H. Andrew. **30**, 337, 6-D1 (1976) (Abstr. in **204**, 313, 16-D10)
- ANDRILLAT, Y. 8200 to 11200 Å Spectra of Peculiar Emission-Line Objects with Infrared Excess. Y. Andrillat and J. P. Swings. **204**, L123, 27-B1 (1976)
- ANGEL, J. R. P. A Reinvestigation of the Scattering Halo of M82 Based on Polarimetric and Isophotal Maps. Gary D. Schmidt, J. R. P. Angel, and R. H. Cromwell. **206**, 888, 55-C1 (1976)
- The Origin of Optical Polarization in NGC 1068. J. R. P. Angel, H. S. Stockman, N. J. Woolf, E. A. Beaver, and P. G. Martin. **206**, L5, 47-A5 (1976)
- TV Spectroscopy of Absorption Lines in the Far-Red of PHL 957. G. R. Gilbert, J. R. P. Angel, S. A. Grandi, G. D. Coleman, P. A. Strittmatter, R. H. Cromwell, and E. B. Jensen. **206**, L129, 56-C12 (1976)
- Systematic Variations in the Wavelength Dependence of Interstellar Circular Polarization. P. G. Martin and J. R. P. Angel. **207**, L26, 59-D1 (1976)
- Night-to-Night Variations in the Optical Polarization of the Nucleus of NGC 1275. P. G. Martin, J. R. P. Angel, and J. Maza. **209**, L21, 92-B8 (1976)
- ANICICH, V. G. Laboratory Studies of Ion-Neutral Reactions in Interstellar Regions: Gas-Phase Equilibrium between HCN and NH₃ in Dense Clouds. W. T. Huntress, Jr. and V. G. Anicich. **208**, 237, 76-E1 (1976)
- ANICICH, VINCENT G. Measurement and Significance of the Reaction $^{13}\text{C}^+ + ^{12}\text{CO} \rightleftharpoons ^{12}\text{C}^+ + ^{13}\text{CO}$ for Alteration of the $^{13}\text{C}/^{12}\text{C}$ Ratio in Interstellar Molecules. William D. Watson, Vincent G. Anicich, and Wesley T. Huntress, Jr. **205**, L165, 42-D11 (1976)
- ANILE, A. M. Cosmological Turbulence Reexamined. A. M. Anile, L. Danese, G. De Zotti, and S. Motta. **205**, L59, 37-A6 (1976)
- Perturbations of the General Robertson-Walker Universes and Angular Variations of the Cosmic Blackbody Radiation. A. M. Anile and S. Motta. **207**, 685, 68-A4 (1976)
- ANTONUCCI, ESTER. A Theoretical Analysis of the Semiannual Component in the Heliolatitude Dependence of High-Energy Galactic Cosmic Rays. Giovanni E. Perona and Ester Antonucci. **207**, 989, 71-B9 (1976)
- APRUZESE, JOHN P. Radiative Transfer in Spherical Circumstellar Dust Envelopes. IV. The Infrared Emissivity Profile and Composition of the Dust in NGC 7027. John P. Apruzese. **203**, 177, 2-G11 (1976)
- Interpretation of the Spectral and Photometric Variations of R Coronae Borealis. Lee Hartmann and John P. Apruzese. **203**, 610, 9-E2 (1976)
- Radiative Transfer in Spherical Circumstellar Dust Envelopes. V. Theoretical Circumstellar Graphite and Silicate Emission Spectra. John P. Apruzese. **207**, 799, 69-B11 (1976)
- ARDAVAN, HOUSHANG. Magnetospheric Shock Discontinuities in Pulsars. I. Analysis of the Inertial Effects at the Light Cylinder. Houshang Ardavan. **203**, 226, 3-D8 (1976)
- The Pulsar Equation Including the Inertial Term: Its First Integrals and Its Alfvén Singularity. Houshang Ardavan. **204**, 889, 25-F2 (1976)
- The Existence of an Ultrarelativistic Plasma Beyond the Alfvén Cylinder of a Pulsar. Houshang Ardavan. **206**, 822, 54-E1 (1976)
- ARENS, J. F. The Isotopic Composition of Cosmic Rays with $5 \leq Z \leq 26$. A. J. Fisher, F. A. Hagen, R. C. Maehl, J. F. Ormes, and J. F. Arens. **205**, 938, 41-B3 (1976)
- ARNETT, W. DAVID. Determining the Stellar Masses in the Binary System Containing the Pulsar PSR 1913+16: Is the Companion a Helium Main-Sequence Star? David H. Roberts, A. Ronald Masters, and W. David Arnett. **203**, 196, 3-B6 (1976)
- Magnetohydrodynamic Phenomena in Collapsing Stellar Cores. David L. Meier, Richard I. Epstein, W. David Arnett, and David N. Schramm. **204**, 869, 25-D10 (1976)
- Propagating Star Formation and Irregular Structure in Spiral Galaxies. Mark W. Mueller and W. David Arnett. **210**, 670, 112-E1 (1976)
- Some Comparisons of Theoretical Supernova Light Curves with Supernova 1969I (Type II) in NGC 1058. W. David Arnett and Sydney W. Falk. **210**, 733, 113-B13 (1976)
- Synthesis of the Light Elements in Supernovae. Richard I. Epstein, W. David Arnett, and David N. Schramm. **31**, 111, 12-F1 (1976) (Abstr. in **205**, 657, 36-E12)
- ARNOLD, S. Eclipses of U Geminorum. S. Arnold, R. A. Berg, and J. G. Duthie. **206**, 790, 54-B10 (1976)
- ARONS, JONATHAN. Accretion onto Magnetized Neutron Stars: Structure and Interchange Instability of a Model Magnetosphere. Jonathan Arons and Susan M. Lea. **207**, 914, 70-D3 (1976)
- Accretion onto Magnetized Neutron Stars: Normal Mode Analysis of the Interchange Instability at the Magnetopause. Jonathan Arons and Susan M. Lea. **210**, 792, 113-G3 (1976)
- ARP, H. C. Observations of Supernovae: 1975a in NGC 2207 and 1975b in the Perseus Cluster. Robert P. Kirshner, H. C. Arp, and J. R. Dunlap. **207**, 44, 58-D9 (1976)
- ARP, HALTON. The Problem of Spiral Galaxies and Satellite Radio Sources. Halton Arp, Roland Carpenter, Samuel Gulkis, and Michael Klein. **205**, 721, 38-E12 (1976)
- A BL Lacertae Object near the Spiral Galaxy NGC 6503. Halton Arp, Jack W. Sulentic, A. G. Willis, and H. R. de Ruiter. **207**, L13, 62-B1 (1976)
- Ejection from the Spiral Galaxy NGC 1097. Halton Arp. **207**, L147, 72-A6 (1976)
- Image Processing of Galaxy Photographs. Halton Arp and Jean Lorre. **210**, 58, 103-E9 (1976)
- A Quasar near a Companion Galaxy, NGC 5296. Halton Arp. **210**, L59, 111-A11 (1976)
- ASBRIDGE, J. R. Solar Cycle Evolution of High-Speed Solar Wind Streams. S. J. Bame, J. R. Asbridge, W. C. Feldman, and J. T. Gosling. **207**, 977, 71-A11 (1976)
- ATHAY, R. G. Preliminary Results from the Orbiting Solar Observatory 8: Transition-Zone Dynamics over a Sunspot. E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. A. Shine, R. G. Athay, and O. R. White. **210**, L97, 111-D11 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Velocities in the Solar Chromosphere Observed in the Si II $\lambda 1816$ Line. E. G. Chipman, E. C. Bruner, Jr., R. A. Shine, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White. **210**, L103, 111-E4 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White. **210**, L107, 111-E8 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Persistent Velocity Fields in the Chromosphere and Transition Region. B. W. Lites, E. C. Bruner, Jr., E. G. Chipman, R. A. Shine, G. J. Rottman, O. R. White, and R. G. Athay. **210**, L111, 111-E12 (1976)
- ATHAY, R. GRANT. Probabilistic Radiative Transfer: An Integral-Equation Approach. R. Grant Athay. **204**, 160, 14-G1 (1976)
- AUDOUZE, J. Heavily Irradiated Grains and Neon Isotope Anomalies in Carbonaceous Chondrites. J. Audouze, J. P. Bibring, J. C. Dran, M. Maurette, and R. M. Walker. **206**, L185, 56-G10 (1976)
- AUDOUZE, JEAN. Implications of the Presence of Deuterium in the Galactic Center. Jean Audouze, James Lequeux, Hubert Reeves, and Laurent Vigroux. **208**, L51, 82-A6 (1976)
- AUER, L. H. An Alternative Formulation of the Complete

- Linearization Method for the Solution of Non-LTE Transfer Problems. *L. H. Auer and J. N. Heasley*. **205**, 165, 29-F8 (1976)
- The Far-Ultraviolet Spectrum of Sirius B from *Copernicus*. *Malcolm P. Savedoff, H. M. Van Horn, F. Wesemael, L. H. Auer, T. P. Snow, and D. G. York*. **207**, L45, 62-D12 (1976)
- AUER, LAWRENCE. The Geometry of VY Canis Majoris Derived from SiO Maser Lines. *David Van Blerkom and Lawrence Auer*. **204**, 775, 24-D13 (1976)
- AUMAN, J. R. Profiles of the [O III] Nebular Lines in Two Bright Seyfert Galaxies. *J. W. Glaspey, J. A. Eilek, G. G. Fahlman, and J. R. Auman*. **203**, 335, 5-D13 (1976)
- AVERY, L. W. Detection of the Heavy Interstellar Molecule Cyanodiacylene. *L. W. Avery, N. W. Broten, J. M. MacLeod, T. Oka, and H. W. Kroto*. **205**, L173, 42-E4 (1976)
- Evidence for Weak Maser Action in Interstellar Cyanodiacylene. *N. W. Broten, J. M. MacLeod, T. Oka, L. W. Avery, J. W. Brooks, R. X. McGee, and Lynette M. Newton*. **209**, L143, 101-G6 (1976)
- AVNI, YORAM. Statistical Simulations of Clusters of Galaxies. *Yoram Avni and Neta A. Bahcall*. **209**, 16, 88-B6 (1976)
- The Eclipse Duration of the X-Ray Pulsar 3U 0900-40. *Yoram Avni*. **209**, 574, 95-E13 (1976)
- Energy Spectra of X-Ray Clusters of Galaxies. *Yoram Avni*. **210**, 642, 112-C1 (1976)
- AVRETT, EUGENE H. Excitation and Ionization of Helium in the Solar Atmosphere. *Eugene H. Avrett, Jorge E. Vernazza, and Jeffrey L. Linsky*. **207**, L199, 72-E7 (1976)
- Structure of the Solar Chromosphere. II. The Underlying Photosphere and Temperature-Minimum Region. *Jorge E. Vernazza, Eugene H. Avrett, and Rudolf Loeser*. **30**, 1, 1-A2 (1976) (Abstr. in **202**, 844, 99-G14)
- AXFORD, W. I. Cosmic-Ray Gradients from *Pioneer-10* and *Pioneer-11*. *W. I. Axford, W. Fillius, L. J. Gleeson, and W. H. Ip*. **210**, 603, 110-D9 (1976)
- AYRES, T. R. The Mg II *h* and *k* Lines. II. Comparison with Synthesized Profiles and Ca II *K*. *T. R. Ayres and J. L. Linsky*. **205**, 874, 40-D6 (1976)
- Stellar Model Chromospheres. V. Alpha Centauri A (G2 V) and Alpha Centauri B (K1 V). *T. R. Ayres, J. L. Linsky, A. W. Rodgers, and R. L. Kurucz*. **210**, 199, 105-B11 (1976)
- BACKER, D. C. Pulsar Average Wave Forms and Hollow-Cone Beam Models. *D. C. Backer*. **209**, 895, 100-D11 (1976)
- BACKMAN, D. E. Observations of Two X-Ray Flares and the Nearby Source MX1716-31. *T. H. Markert, D. E. Backman, and J. E. McClintock*. **208**, L115, 86-F13 (1976)
- BAHCALL, J. N. Is the Local Supercluster a Physical Association? *J. N. Bahcall and P. C. Joss*. **203**, 23, 1-B11 (1976)
- Search for X-Ray Emission from Globular Clusters Using *Uhuru* Data. *M. P. Ulmer, S. S. Murray, H. Gursky, and J. N. Bahcall*. **208**, 47, 74-D11 (1976)
- Star Distribution around a Massive Black Hole in a Globular Cluster. *J. N. Bahcall and R. A. Wolf*. **209**, 214, 90-C1 (1976)
- BAHCALL, JOHN. Circumstellar Matter in the Binary V Puppis. *Donald G. York, Brian Flannery, and John Bahcall*. **210**, 143, 104-E11 (1976)
- BAHCALL, NETA A. Optical Structure of the X-Ray Globular Cluster NGC 6624. *Neta A. Bahcall*. **204**, L83, 22-B10 (1976)
- Optical Structure of the X-Ray Globular Clusters NGC 6440 and NGC 6441. *Neta A. Bahcall and Mark A. Hausman*. **207**, L181, 72-D1 (1976)
- Statistical Simulations of Clusters of Galaxies. *Yoram Avni and Neta A. Bahcall*. **209**, 16, 88-B6 (1976)
- Radio-Optical Candidates for the High-Latitude X-Ray Sources 3U 1555+27 and 3U 1809+50. *Neta A. Bahcall, D. E. Harris, and R. G. Strom*. **209**, L17, 92-B3 (1976)
- BAITY, W. A. UCSD OSO-7 Observations of the Hard X-Ray Spectrum and Variability of Centaurus A. *R. F. Mushotzky, W. A. Baity, Wm. A. Wheaton, and L. E. Peterson*. **206**, L45, 47-D6 (1976)
- BAKER, K. Pulsar Extinction. *P. A. Sturrock, K. Baker, and J. S. Turk*. **206**, 273, 45-G9 (1976)
- BALBUS, S. A. Tidal Friction in the Binary Pulsar System PSR 1913+16. *S. A. Balbus and K. Brecher*. **203**, 202, 3-B12 (1976)
- BALDWIN, JACK A. Observations of High-Redshift QSOs from a Molonglo Faint Source Survey. *Jack A. Baldwin, Harding E. Smith, E. Margaret Burbidge, Cyril Hazard, Hugh S. Murdoch, and David L. Jauncey*. **206**, L83, 52-A13 (1976)
- BALICK, BRUCE. Radio Synthesis Observations of Planetary Nebulae. II. A Search For Sub-Arcsecond Structure. *Bruce Balick and Yervant Terzian*. **204**, 441, 19-C5 (1976)
- Studies of the Dusty H II Region NGC 2024. *Bruce Balick*. **208**, 75, 74-F12 (1976)
- The Ionization Structure of H II Regions: The Effects of Stellar Metal Opacity. *Bruce Balick and Christopher Sneden*. **208**, 336, 78-E8 (1976)
- H I in Early-Type Galaxies. III. Observations of S0 Galaxies. *Bruce Balick, S. M. Faber, and J. S. Gallagher*. **209**, 710, 98-E6 (1976)
- BALLINTINE, J. E. High-Energy X-Ray Observations of the Transient Source A0535+26 from a Balloon-Borne Telescope. *G. R. Ricker, A. Scheepmaker, J. E. Ballintine, J. P. Doty, G. A. Kriss, S. G. Ryckman, and W. H. G. Lewin*. **204**, L73, 22-B1 (1976)
- The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. *A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballintine, J. P. Doty, P. M. Downey, and W. H. G. Lewin*. **205**, L65, 37-A11 (1976)
- BALONEK, THOMAS J. Radio Emission from the X-Ray Source A02620-00. *Frazer N. Owen, Thomas J. Balonek, John Dickey, Yervant Terzian, and S. T. Gottesman*. **203**, L15, 4-D6 (1976)
- BALUTEAU, J. -P. Infrared Line Emission from the Orion Nebula: Detection of [S III] (18.71 μ) and [O III] (88.35 μ). *J. P. Baluteau, E. Bussolletti, M. Anderegg, A. F. M. Moorwood, and N. Coron*. **210**, L45, 106-E1 (1976)
- BAME, S. J. Solar Cycle Evolution of High-Speed Solar Wind Streams. *S. J. Bame, J. R. Asbridge, W. C. Feldman, and J. T. Gosling*. **207**, 977, 71-A11 (1976)
- BANIA, T. M. The Observational Effects of Explosions in the Nuclei of Spiral Galaxies. *R. H. Sanders and T. M. Bania*. **204**, 341, 18-C3 (1976)
- BARDWELL, S. Three-Dimensional Langmuir Wave Instabilities in Type III Solar Radio Bursts. *S. Bardwell and M. V. Goldman*. **209**, 912, 100-F1 (1976)
- BARLOW, MICHAEL J. H₂ Recombination on Interstellar Grains. *Michael J. Barlow and Joseph Silk*. **207**, 131, 59-D6 (1976)
- BARNES, C. W. Evidence for Interplanetary Acceleration of Nucleons in Corotating Interaction Regions. *C. W. Barnes and J. A. Simpson*. **210**, L91, 111-D4 (1976)
- BARNES, THOMAS G. Silicon Monoxide in the 4 Micron Infrared Spectrum of Long-Period Variables. *Kenneth H. Hinkle, Thomas G. Barnes, David L. Lambert, and Reinhard Beer*. **210**, L141, 155-B11 (1976)
- BARNES, THOMAS G., III. Comments on the Optical Counterpart of the X-Ray Source 3U 0352+30. *Thomas J. Moffett and Thomas G. Barnes III*. **207**, L185, 72-D7 (1976)
- Observational Evidence against a Time Variation in Planck's Constant. *Jan-Erik Solheim, Thomas G. Barnes III, and Harlan J. Smith*. **209**, 330, 93-B1 (1976)
- Comments on the Optical Counterpart of the X-Ray Source 3U 0351+30: Erratum. *Thomas J. Moffett and Thomas G. Barnes III*. **210**, L115, 111-F3 (1976) (Orig. paper in **207**, L185, 72-D7)
- BARNOTHY, JENO M. Critique of Bell and Fort's Quasar Model. *Jeno M. Barnothy and George J. Corso*. **204**, 337, 18-B12 (1976)

- BAROUCH, E. Interplanetary Stream Magnetism: Kinematic Effects. *L. F. Burlaga and E. Barouch*. **203**, 257, 3-F13 (1976)
- BARTOE, J. -D. F. Absolute Solar Ultraviolet Intensities and Their Variations with Solar Activity. I. The Wavelength Region 1750-2100 Å. *G. E. Brueckner, J. -D. F. Bartoe, O. Kjeldseth Moe, and M. E. VanHoosier*. **209**, 935, 100-G13 (1976)
- The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175-1940 Å. *G. A. Doschek, U. Feldman, M. E. VanHoosier, and J. -D. F. Bartoe*. **31**, 417, 18-E1 (1976) (Abstr. in **206**, 964, 56-A13)
- BASH, FRANK N. Dynamics of CO Molecular Clouds in the Galaxy. *Frank N. Bash and William L. Peters*. **205**, 786, 39-C11 (1976)
- BATES, R. H. T. Digital Restoration of an Image of Betelgeuse. *M. J. McDonnell and R. H. T. Bates*. **208**, 443, 79-F13 (1976)
- BAUM, WILLIAM A. Cosmological Evidence against Time Variation of the Fundamental Atomic Constants. *William A. Baum and Ralph Florentin-Nielsen*. **209**, 319, 93-A3 (1976)
- BAYM, G. Dynamical Effects of Possible Solid Cores in Neutron Stars and Degenerate Dwarfs. *G. Baym, D. Q. Lamb, and F. K. Lamb*. **208**, 829, 85-D13 (1976)
- BEAUDET, G. Big-Bang Nucleosynthesis with Nonzero Lepton Numbers. *A. Yahil and G. Beaudet*. **206**, 26, 43-C1 (1976)
- BEAVER, E. A. The Redshift of 0938+119. *E. A. Beaver, R. Harms, C. Hazard, H. S. Murdoch, R. F. Carswell, and P. F. Strittmatter*. **203**, L5, 4-C6 (1976)
- Detection of a He I 4517 Å Absorption Feature in the DB White Dwarf GD 190. *James Liebert, E. A. Beaver, J. W. Robertson, and P. A. Strittmatter*. **204**, L119, 27-A10 (1976)
- The Origin of Optical Polarization in NGC 1068. *J. R. P. Angel, H. S. Stockman, N. J. Woolf, E. A. Beaver, and P. G. Martin*. **206**, L5, 47-A5 (1976)
- BECHIS, KENNETH P. CRL 2688 and CRL 618: Proto-Planetary Nebulae? *K. Y. Lo and Kenneth P. Bechis*. **205**, L21, 32-B7 (1976)
- BECKER, R. H. High-Resolution Radio Observations of Three Supernova Remnants. *R. H. Becker and M. R. Kundu*. **204**, 427, 19-B5 (1976)
- Iron Line Emission from a High-Temperature Plasma in Cassiopeia A. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank*. **206**, L41, 47-D2 (1976)
- 3.7 and 11.1 Centimeter Observations of the Radio Galaxy 3C 386. *R. H. Becker and M. R. Kundu*. **207**, 29, 58-C7 (1976)
- Spectral Variability in the X-Ray Pulsar GX 1+4. *R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank*. **207**, L167, 72-C2 (1976)
- X-Ray Observations of the Vela Pulsar: Statistics and Spectrum. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank*. **208**, L67, 82-B6 (1976)
- Variations in the Spectra and Pulse Period of GX 301-2. *J. H. Swank, R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, and P. J. Serlemitsos*. **209**, L57, 96-F4 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. *R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank*. **209**, L65, 96-F12 (1976)
- BECKERS, JACQUES M. The Flux of Alfvén Waves in Sunspots. *Jacques M. Beckers*. **203**, 739, 11-A1 (1976)
- BECKLIN, E. E. One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. *M. W. Werner, I. Gatley, D. A. Harper, E. E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson*. **204**, 420, 19-A13 (1976)
- Optical and Infrared Spectrophotometry of 18 Markarian Galaxies. *G. Neugebauer, E. E. Becklin, J. B. Oke, and L. Searle*. **205**, 29, 28-C7 (1976)
- Late-Type Giants and Supergiants in the Galactic Center. *G. Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams*. **205**, L139, 42-C3 (1976)
- Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner*. **207**, 78, 58-G1 (1976)
- Infrared Studies of an Ionized Front Region in the Orion Nebula. *E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner*. **207**, 770, 68-G8 (1976)
- Infrared Observations of Monoceros R2. *S. Beckwith, N. J. Evans II, E. E. Becklin, and G. Neugebauer*. **208**, 390, 79-B9 (1976)
- BECKWITH, S. Late-Type Giants and Supergiants in the Galactic Center. *G. Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams*. **205**, L139, 42-C3 (1976)
- Infrared Studies of an Ionized Front Region in the Orion Nebula. *E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner*. **207**, 770, 68-G8 (1976)
- Infrared Observations of Monoceros R2. *S. Beckwith, N. J. Evans II, E. E. Becklin, and G. Neugebauer*. **208**, 390, 79-B9 (1976)
- BEER, REINHARD. Silicon Monoxide in the 4 Micron Infrared Spectrum of Long-Period Variables. *Kenneth H. Hinkle, Thomas G. Barnes, David L. Lambert, and Reinhard Beer*. **210**, L141, 155-B11 (1976)
- BEGEMANN, F. On the Primordial Abundance of Argon-40. *F. Begemann, H. W. Weber, and H. Hintenberger*. **203**, L155, 11-G9 (1976)
- BEHRING, W. E. The Solar Spectrum: Wavelengths and Identifications from 160 to 770 Angstroms. *W. E. Behring, L. Cohen, U. Feldman, and G. A. Doschek*. **203**, 527, 7-E11 (1976)
- BEKENSTEIN, JACOB D. Supernovae in Binaries, and the Possible Collapsed Nature of the Companion of HD 108. *Jacob D. Bekenstein*. **210**, 544, 109-F12 (1976)
- BELCHER, J. W. Magnetic Acceleration of Winds from Solar-Type Stars. *J. W. Belcher and K. B. MacGregor*. **210**, 498, 109-C7 (1976)
- BELIAN, R. D. The Discovery of X-Ray Bursts from a Region in the Constellation Norma. *R. D. Belian, J. P. Conner, and W. D. Evans*. **206**, L135, 56-D3 (1976)
- A Preliminary Sky Map of Brief X-Ray Transients. *R. D. Belian, J. P. Conner, and W. D. Evans*. **207**, L33, 62-D1 (1976)
- Observations of Intense Cosmic X-Ray Bursts. *W. D. Evans, R. D. Belian, and J. P. Conner*. **207**, L91, 67-B8 (1976)
- BELL, R. A. Possible Evidence for the Occurrence of Magnetic Fields of Order 10 Kilogauss in the Red Dwarf Star BY Draconis. *D. J. Mullan and R. A. Bell*. **204**, 818, 25-A1 (1976)
- Enhanced Abundances of Nitrogen and s-Process Elements in Red Giant Stars in Omega Centauri. *R. J. Dickens and R. A. Bell*. **207**, 506, 64-F14 (1976)
- BENEDICT, G. F. Skylab Ultraviolet Stellar Spectra: Cool Stars with Hot Secondaries. *S. B. Parsons, J. D. Wray, Y. Kondo, K. G. Henize, and G. F. Benedict*. **203**, 435, 6-E9 (1976)
- Skylab Ultraviolet Stellar Spectra: A New White Dwarf, HD 149499. *B. S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and M. Laget*. **206**, L71, 47-F4 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. *Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey*. **208**, 468, 80-A9 (1976)
- BENZ, A. O. Synchrotron or Plasma Process Emission in Narrow-Band Type IV_{dm} Bursts? *A. O. Benz and G. L.*

- Tarnstrom. **204**, 597, 21-A5 (1976)
- BERG, R. A. Eclipses of U Geminorum. *S. Arnold, R. A. Berg, and J. G. Duthie*. **206**, 790, 54-B10 (1976)
- BERGERON, JACQUELINE. The Nature of the Nebulosity around 3C 48. *Jacqueline Bergeron*. **210**, 287, 107-A12 (1976)
- BERNAT, A. P. Copernicus Observations of Betelgeuse and Antares. *A. P. Bernat and D. L. Lambert*. **204**, 830, 25-A13 (1976)
- K 17699 Å Emission from the Betelgeuse Shell. *A. P. Bernat and D. L. Lambert*. **210**, 395, 108-B10 (1976)
- BERTAUX, J. L. Lyman-Alpha Observations of Comet Kohoutek 1973 XII with Copernicus. *J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller*. **209**, 302, 91-B10 (1976)
- BERTIN, G. The Bifurcation from the Maclaurin to the Jacobi Sequence as a Second-Order Phase Transition. *G. Bertin and L. A. Radicati*. **206**, 815, 54-D7 (1976)
- BERTOJO, M. Collisional Excitation of Λ Doublet Transitions in CH and OH. *M. Bertojo, A. C. Cheung, and C. H. Townes*. **208**, 914, 86-B6 (1976)
- BESSELL, M. S. A Possible Magnetic DA White Dwarf. *D. T. Wickramasinghe and M. S. Bessell*. **203**, L39, 4-F1 (1976)
- The Giant Branch of Omega Centauri. I. Abundance Variations Due to Mixing. *M. S. Bessell and John Norris*. **208**, 369, 79-A1 (1976)
- The Age and Chemical Composition of the LMC Cluster NGC 2209. *S. C. B. Gascoigne, John Norris, M. S. Bessell, A. R. Hyland, and N. Visvanathan*. **209**, L25, 92-B11 (1976)
- The Giant Branch of ω Centauri. I. Abundance Variations Due to Mixing: Erratum. *M. S. Bessell and John Norris*. **210**, 618, 110-E10 (1976) (Orig. paper in **208**, 369, 79-A1)
- BETZ, A. L. Heterodyne Detection of CO₂ Emission Lines and Wind Velocities in the Atmosphere of Venus. *A. L. Betz, M. A. Johnson, R. A. McLaren, and E. C. Sutton*. **208**, L141, 87-B4 (1976)
- Nonthermal 10 Micron CO₂ Emission Lines in the Atmospheres of Mars and Venus. *M. A. Johnson, A. L. Betz, R. A. McLaren, E. C. Sutton, and C. H. Townes*. **208**, L145, 87-B8 (1976)
- BIBRING, J. P. Heavily Irradiated Grains and Neon Isotope Anomalies in Carbonaceous Chondrites. *J. Audouze, J. P. Bibring, J. C. Dran, M. Maurette, and R. M. Walker*. **206**, L185, 56-G10 (1976)
- BIEŃIEWSKI, THOMAS M. Absolute Oscillator Strengths for Chromium and the Chromium Solar Abundance. *Thomas M. Bieñewski*. **208**, 228, 76-D5 (1976)
- BIGNAMI, G. F. Significance of Medium-Energy Gamma-Ray Astronomy in the Study of Cosmic Rays. *C. E. Fichtel, D. A. Kniffen, D. J. Thompson, G. F. Bignami, and C. Y. Cheung*. **208**, 211, 76-C2 (1976)
- BLACK, DAVID C. Evolution of Rotating Interstellar Clouds. II. The Collapse of Protostars of 1, 2, and 5 M_{\odot} . *David C. Black and Peter Bodenheimer*. **206**, 138, 44-D7 (1976)
- BLACK, J. H. Interstellar H₂: The Population of Excited Rotational States and the Infrared Response to Ultraviolet Radiation. *J. H. Black and A. Dalgarno*. **203**, L32, 2-D3 (1976)
- BLACK, JOHN H. CO Observations of the Bright-rimmed Cloud B35. *Charles J. Lada and John H. Black*. **203**, L75, 8-D1 (1976)
- BLAKE, J. B. Effects of Convective Overshoot on Lithium Depletion in Main-Sequence Stars. *Joe M. Straus, J. B. Blake, and David N. Schramm*. **204**, 481, 19-F7 (1976)
- Cosmic-Ray Spallative Origin of the Rare Odd-Odd Nuclei, Consistent with Light Element Production. *Kem L. Hainebach, David N. Schramm, and J. B. Blake*. **205**, 920, 40-G12 (1976)
- A Possible Alternative to the r -Process. *J. B. Blake and D. N. Schramm*. **209**, 846, 100-A1 (1976)
- BLANDFORD, ROGER. Arrival-Time Analysis for a Pulsar in a Binary System. *Roger Blandford and Saul A. Teukolsky*. **205**, 580, 35-G5 (1976)
- The Binary Pulsar: Physical Processes, Possible Companions, and Evolutionary Histories. *Larry L. Smarr and Roger Blandford*. **207**, 574, 65-E2 (1976)
- BLANKENSHIP, L. Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner*. **207**, 78, 58-G1 (1976)
- BLESS, R. C. Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXI. Absolute Energy Distribution of Stars in the Ultraviolet. *R. C. Bless, A. D. Code, and E. T. Fairchild*. **203**, 410, 6-C10 (1976)
- Empirical Effective Temperatures and Bolometric Corrections for Early-Type Stars. *A. D. Code, J. Davis, R. C. Bless, and R. Hanbury Brown*. **203**, 417, 6-D4 (1976)
- BLINT, R. J. Calculation of the Cross Section for C IV-H Charge Exchange: Significance for Interstellar X-Rays/Cosmic-Ray Particles. *R. J. Blint, W. D. Watson, and R. B. Christensen*. **205**, 634, 36-D2 (1976)
- Calculations of the Lower Electronic States of CH₃⁺: A Postulated Intermediate in Interstellar Reactions. *R. J. Blint, R. F. Marshall, and William D. Watson*. **206**, 627, 51-A13 (1976)
- BLUMENTHAL, GEORGE R. Spherical Winds and Accretion in General Relativity. *George R. Blumenthal and William G. Mathews*. **203**, 714, 10-F1 (1976)
- BOCCHIA, R. Solar Millimetric Bright Sources on the Quiet Sun. *R. Bocchia and F. Poumeyrol*. **204**, L107, 22-D7 (1976)
- BODENHEIMER, PETER. Evolution of Rotating Interstellar Clouds. II. The Collapse of Protostars of 1, 2, and 5 M_{\odot} . *David C. Black and Peter Bodenheimer*. **206**, 138, 44-D7 (1976)
- BOESGAARD, ANN MERCHANT. Ultraviolet Fe II Emission in Late-Type Stars. *Ann Merchant Boesgaard and Hans Boesgaard*. **205**, 448, 34-D13 (1976)
- Beryllium in Main-Sequence Stars. *Ann Merchant Boesgaard*. **210**, 466, 109-A1 (1976)
- Beryllium and Post-Main-Sequence Evolution. *Ann Merchant Boesgaard and Suzan Edwards Chesley*. **210**, 475, 109-A11 (1976)
- BOESGAARD, HANS. Ultraviolet Fe II Emission in Late-Type Stars. *Ann Merchant Boesgaard and Hans Boesgaard*. **205**, 448, 34-D13 (1976)
- BOHANNAN, BRUCE. Spectroscopic Studies of O-Type Binaries. I. BD +40°4220: An Enigma Ripe for Resolution. *Bruce Bohannan and Peter S. Conti*. **204**, 797, 24-F8 (1976)
- BOHLIN, J. D. Doppler Wavelength Shifts of Transition Zone Lines Measured in Skylab Solar Spectra. *G. A. Doschek, U. Feldman, and J. D. Bohlin*. **205**, L177, 42-E7 (1976)
- BÖHM, K.-H. Emission Line Spectra of Individual Condensations of Herbig-Haro Objects. *K.-H. Böhm, W. A. Siegmund, and R. D. Schwartz*. **203**, 399, 6-B13 (1976)
- BÖHM-VITENSE, ERIKA. About the Proper Choice of the Characteristic Length in the Convection Theory. *Erika Böhm-Vitense and George Driver Nelson*. **210**, 741, 113-C7 (1976)
- BOKSBERG, A. 3C 68.1: A Very Red QSO with an Intermediate Redshift. *A. Boksenberg, R. F. Carswell, and J. B. Oke*. **206**, L121, 56-C2 (1976)
- BOLDT, E. A. New Results from Long-Term Observations of Cygnus X-1. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluziński*. **203**, L63, 8-C2 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. I. Search for Binary Periodicity. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluziński*. **205**, L27, 32-B12 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. II. Evidence for Flare-Dominated Intensity Variations. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluziński*. **205**, L79, 37-B9 (1976)
- Evidence for an 11.2 Day Periodicity from Cygnus X-2. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluziński*.

- 205, L143, 42-C6 (1976)
- Iron Line Emission from a High-Temperature Plasma in Cassiopeia A. S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **206**, L41, 47-D2 (1976)
- Spectral Variability in the X-Ray Pulsar GX 1+4. R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **207**, L167, 72-C2 (1976)
- X-Ray Observations of the Vela Pulsar: Statistics and Spectrum. S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **208**, L67, 82-B6 (1976)
- Evidence for a 16.6 Day Period from Circinus X-1. L. J. Kaluzienski, S. S. Holt, E. A. Boldt, and P. J. Serlemitsos. **208**, L71, 82-B9 (1976)
- Variations in the Spectra and Pulse Period of GX 301-2. J. H. Swank, R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, and P. J. Serlemitsos. **209**, L57, 96-F4 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **209**, L65, 96-F12 (1976)
- BOLDT, ELIHU. An X-Ray Redshift Measure for Clusters of Galaxies Up to $z \geq 1$. *Elihu Boldt*. **208**, L15, 77-B1 (1976)
- BOLEY, F. Optical Identification of A0620-00. F. Boley, R. Wolfson, H. Bradt, R. Doxsey, G. Jernigan, and W. A. Hiltner. **203**, L13, 4-D2 (1976)
- BOLTON, C. T. The Radio-flaring Triple System b Persei. Graham Hill, G. C. L. Aikman, Anne P. Cowley, C. T. Bolton, and J. C. Thomas. **208**, 152, 75-E12 (1976)
- BOLTON, J. G. Spectroscopy of QSO Pairs. J. G. Bolton, B. A. Peterson, Beverley J. Wills, and D. Wills. **210**, L1, 106-B2 (1976)
- BOND, HOWARD E. The Chemical Composition of Two subgiant CH Stars. Christopher Sneden and Howard E. Bond. **204**, 810, 24-G7 (1976)
- BONOMETTO, S. A. Conditions for Galaxy Formation from Adiabatic Fluctuations. S. A. Bonometto and F. Lucchin. **206**, 391, 48-E1 (1976)
- BONSACK, WALTER K. HR 2727: A Double-Line Binary Containing a Magnetic Ap Star. Walter K. Bonsack. **209**, 160, 89-F2 (1976)
- BOPP, BERNARD W. Zeeman Observations of the H α Region in BY Draconis. Christopher M. Anderson, Lee W. Hartmann, and Bernard W. Bopp. **204**, L51, 17-D9 (1976)
- High Time-Resolution Observations of UV Ceti Stars. Thomas J. Moffett and Bernard W. Bopp. **31**, 61, 11-G11 (1976) (Abstr. in **205**, 656, 36-E11)
- BORD, D. J. Optical Observations of WRA 977. D. J. Bord, D. E. Mook, L. Petro, and W. A. Hiltner. **203**, 689, 10-D2 (1976)
- Radial-Velocity Variations of Scorpius X-1 Emission Lines. D. J. Bord, R. J. Messina, D. E. Mook, and W. A. Hiltner. **206**, L49, 47-D10 (1976)
- BORIAKOFF, VALENTIN. Pulsar AP 2016+28: High-Frequency Periodicity in the Pulse Microstructure. Valentin Boriakoff. **208**, L43, 77-D1 (1976)
- BORRA, ERMANNO F. H α Polarization and Line Profiles in White Dwarfs with Strong Magnetic Fields. Ermanno F. Borra. **209**, 858, 100-B1 (1976)
- Observations of the Transverse Zeeman Effect in the Magnetic Star Beta Coronae Borealis: Evidence for the Oblique Rotator Model. Ermanno F. Borra and Arthur H. Vaughan. **210**, L145, 115-C1 (1976)
- BOURASSA, R. R. Multiple Image Probabilities for a Spheroidal Gravitational Lens. R. R. Bourassa and R. Kantowski. **205**, 674, 38-B5 (1976)
- BOWDEN, R. L. A Banach Space Analysis of the Chandrasekhar H-Equation. R. L. Bowden and P. F. Zweifel. **210**, 178, 105-A4 (1976)
- BOWERS, RICHARD L. A Higher Stability Limit for Neutron Stars. Richard L. Bowers, A. M. Gleeson, and R. Daryl Pedigo. **205**, 261, 30-G4 (1976)
- BOWYER, S. A Search for Optical Counterparts of Nine Galactic X-Ray Sources. A. Davidsen, R. Malina, and S. Bowyer. **203**, 448, 6-F12 (1976)
- BOWYER, STUART. An Ultrasoft X-Ray Source in Coma Berenices. Bruce Margon, Roger Malina, Stuart Bowyer, Ray Cruddace, and Michael Lampton. **203**, L25, 4-E1 (1976)
- Discovery of a Nonsolar Extreme-Ultraviolet Source. Michael Lampton, Bruce Margon, Francesco Paresce, Robert Stern, and Stuart Bowyer. **203**, L71, 8-C9 (1976)
- Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources. Patrick Henry, Stuart Bowyer, Michael Lampton, Francesco Paresce, and Raymond Cruddace. **205**, 426, 34-C3 (1976)
- An X-Ray Survey of BL Lacertae Objects. Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidsen, Keith O. Mason, and Peter W. Sanford. **207**, 359, 63-B6 (1976)
- Upper Limits to the Interstellar Radiation Field between 775 and 1050 Å. Francesco Paresce and Stuart Bowyer. **207**, 432, 64-A1 (1976)
- Soft X-Ray Profile and Spectrum of the Supernova Remnant IC 443. Roger Malina, Michael Lampton, and Stuart Bowyer. **207**, 894, 70-B11 (1976)
- Parameter Estimation in X-Ray Astronomy. Michael Lampton, Bruce Margon, and Stuart Bowyer. **208**, 177, 75-G9 (1976)
- Observations of Interstellar Helium with a Gas Absorption Cell: Limits on the Bulk Velocity of the Interstellar Medium. Jay Freeman, Francesco Paresce, Stuart Bowyer, and Michael Lampton. **208**, 747, 84-C7 (1976)
- Optical Pulsations in HZ Herculis. V. Pulse-Resolved Spectrophotometry. Bruce Margon, Arthur Davidsen, and Stuart Bowyer. **208**, L35, 77-C7 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer. **209**, 525, 95-B4 (1976)
- Soft X-Ray Morphology of the Virgo, Coma, and Perseus Clusters of Galaxies. Roger Malina, Michael Lampton, and Stuart Bowyer. **209**, 678, 98-C2 (1976)
- Detection of an Extreme-Ultraviolet Source in the Southern Sky. Patrick Henry, Stuart Bowyer, C. G. Rapley, and J. L. Culhane. **209**, L29, 92-C2 (1976)
- An Intense Extreme-Ultraviolet Source in Cetus. Bruce Margon, Michael Lampton, Stuart Bowyer, Robert Stern, and Francesco Paresce. **210**, L79, 111-C6 (1976)
- BOYNTON, P. Analysis of Periodic Optical Variability in the Compact X-Ray Source Hercules X-1/HZ Herculis. J. Deeter, L. Crosa, D. Gerend, and P. Boynton. **206**, 861, 55-A1 (1976)
- BOYNTON, P. E. Optical Clues to the Nature of Hercules X-1/HZ Herculis. D. Gerend and P. E. Boynton. **209**, 562, 95-E1 (1976)
- Orbital Precession in Hercules X-1. J. E. Deeter and P. E. Boynton. **210**, L133, 115-B3 (1976)
- BRADT, H. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. R. Doxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaile, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper. **203**, L9, 4-C12 (1976)
- Optical Identification of A0620-00. F. Boley, R. Wolfson, H. Bradt, R. Doxsey, G. Jernigan, and W. A. Hiltner. **203**, L13, 4-D2 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper. **204**, L67, 22-A10 (1976)

- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. *J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini.* **206**, L99, 52-C4 (1976)
- Evidence for the Binary Nature of A0535+26. *S. Rappaport, P. C. Joss, H. Bradt, G. W. Clark, and J. G. Jernigan.* **208**, L119, 86-G3 (1976)
- BRADT, H. V. The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. *T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod.* **210**, L127, 115-A12 (1976)
- BRADT, H. V. D. MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport.* **203**, L21, 4-D11 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport.* **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Duxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson.* **207**, L95, 67-B12 (1976)
- BRAGINSKY, VLADIMIR B. Gravitational-Wave Bursts from the Nuclei of Distant Galaxies and Quasars: Proposal for Detection Using Doppler Tracking of Interplanetary Spacecraft. *Kip S. Thorne and Vladimir B. Braginsky.* **204**, L1, 17-A2 (1976)
- BRANCH, DAVID. On the Multiplicity of Solar-Type Stars. *David Branch.* **210**, 392, 108-B7 (1976)
- BRANDT, JOHN C. Direct Photography of the Gum Nebula. *John C. Brandt, Robert G. Roosen, J. Thompson, and D. J. Ludden.* **208**, 109, 75-B6 (1976)
- BRANDUARDI, GRAZIELLA. The X-Ray Behavior of 3U 1700-37. *Keith O. Mason, Graziella Branduardi, and Peter Sanford.* **203**, L29, 4-E5 (1976)
- BRECHER, K. Tidal Friction in the Binary Pulsar System PSR 1913+16. *S. A. Balbus and K. Brecher.* **203**, 202, 3-B12 (1976)
- The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. *A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballintine, J. P. Doty, P. M. Downey, and W. H. G. Lewin.* **205**, L65, 37-A11 (1976)
- On the Origin of Continuum Polarization in White Dwarfs. *W. H. Ingham, K. Brecher, and I. Wasserman.* **207**, 518, 65-A1 (1976)
- Infrared Emission from A0620-00. *S. G. Kleinmann, K. Brecher, and W. H. Ingham.* **207**, 532, 65-B1 (1976)
- BREDEKAMP, J. H. Photonuclear Interactions of Ultrahigh-Energy Cosmic Rays and Their Astrophysical Consequences. *J. L. Puget, F. W. Stecker, and J. H. Bredekamp.* **205**, 638, 36-D6 (1976)
- BREGER, MICHEL. A Polarization Survey of Stars near the Orion Nebula. *Michel Breger.* **204**, 789, 24-E12 (1976)
- Metallicism, Pulsation, and the Nature of 32 Virginis. *Donald W. Kurtz, Michel Breger, Steven W. Evans, and William H. Sandmann.* **207**, 181, 60-A4 (1976)
- Relationship between Radial Velocity and Light Variations in HR 7331 and Other Delta Scuti Stars. *Michel Breger, John Hutchins, and Leonard V. Kuhi.* **210**, 163, 104-G3 (1976)
- Evaluation of Stellar Spectrophotometry. *Michel Breger.* **32**, 1, 22-A2 (1976) (Abstr. in **208**, 271, 76-G9)
- Catalog of Spectrophotometric Scans of Stars. *Michel Breger.* **32**, 7, 22-B1 (1976) (Abstr. in **208**, 271, 76-G9)
- BRINI, D. Flare from the Perseus Region in Hard X-Rays. *F. Fuligni, D. Brini, W. Dusi, and F. Frontera.* **208**, L111, 86-F10 (1976)
- BRINKMAN, A. C. Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. *J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver.* **205**, L127, 42-B6 (1976)
- BRODERICK, J. J. Meter-Wavelength VLBI. III. Pulsars. *N. R. Vandenberg, T. A. Clark, W. C. Erickson, G. M. Resch, and J. J. Broderick.* **207**, 937, 70-E12 (1976)
- 3C 286: A Cosmological QSO? *A. M. Wolfe, J. J. Broderick, J. J. Condon, and K. J. Johnston.* **208**, L47, 82-A2 (1976)
- BROOKS, J. W. Evidence for Weak Maser Action in Interstellar Cyanodiacetylene. *N. W. Broten, J. M. MacLeod, T. Oka, L. W. Avery, J. W. Brooks, R. X. McGee, and Lynette M. Newton.* **209**, L143, 101-G6 (1976)
- BROTEN, N. W. Detection of the Heavy Interstellar Molecule Cyanodiacetylene. *L. W. Avery, N. W. Broten, J. M. MacLeod, T. Oka, and H. W. Kroto.* **205**, L173, 42-E4 (1976)
- Evidence for Weak Maser Action in Interstellar Cyanodiacetylene. *N. W. Broten, J. M. MacLeod, T. Oka, L. W. Avery, J. W. Brooks, R. X. McGee, and Lynette M. Newton.* **209**, L143, 101-G6 (1976)
- BROWN, DEBORAH A. An Elementary Theory of Eclipsing Depths of the Light Curve and Its Application to Beta Lyrae. *Su-Shu Huang and Deborah A. Brown.* **204**, 151, 14-F5 (1976)
- An Interpretation of Beta Lyrae. II. Disk Luminosity, Mass Ratio, and Nature of the Secondary Component. *Su-Shu Huang and Deborah A. Brown.* **208**, 780, 84-F6 (1976)
- BROWN, LARRY W. Possible Radio Emission from Uranus at 0.5 MHz. *Larry W. Brown.* **207**, L209, 72-F5 (1976)
- BROWN, R. D. Detection of Interstellar Vibrationally Excited Cyanoacetylene. *F. O. Clark, R. D. Brown, P. D. Godfrey, J. W. V. Storey, and D. R. Johnson.* **210**, L139, 115-B9 (1976)
- BROWN, R. HANBURY. Empirical Effective Temperatures and Bolometric Corrections for Early-Type Stars. *A. D. Code, J. Davis, R. C. Bless, and R. Hanbury Brown.* **203**, 417, 6-D4 (1976)
- BROWN, R. L. OH and H₂O Masers in the Monoceros-R2 Molecular Cloud. *G. R. Knapp and R. L. Brown.* **204**, 21, 13-C1 (1976)
- Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner.* **207**, 78, 58-G1 (1976)
- CO Observations of the Expanding Envelope of IRC + 10216: Erratum. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and R. L. Brown.* **207**, 341, 61-E13 (1976) (Orig. paper in **204**, 408, 19-A1)
- BROWN, ROBERT A. A Model of Jupiter's Sulfur Nebula. *Robert A. Brown.* **206**, L179, 56-G5 (1976)
- BROWN, ROBERT L. CO Observations of the Expanding Envelope of IRC + 10216. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and Robert L. Brown.* **204**, 408, 19-A1 (1976)
- Carbon Recombination Line Observations of the Sharpless 140 Region. *G. R. Knapp, Robert L. Brown, T. B. H. Kuiper, and R. K. Kakar.* **204**, 781, 24-E5 (1976)
- Observations of Heavy-Element Recombination Lines in the Rho Ophiuchi Dark Cloud at 13 Centimeter Wavelength. *G. R. Knapp, T. B. H. Kuiper, and Robert L. Brown.* **206**, 109, 44-B1 (1976)
- CO Observations of NGC 1579 (S222) and S239. *G. R. Knapp, T. B. H. Kuiper, S. L. Knapp, and Robert L. Brown.* **206**, 443, 49-A13 (1976)
- On the Derivation of Nebular Electron Temperatures from Radio Recombination Line Observations. *Felix J. Lockman and Robert L. Brown.* **207**, 436, 64-A5 (1976)
- BRUECKNER, G. E. High-Temperature Flare Lines in the Solar Spectrum 171-630 Å. *G. D. Sandlin, G. E. Brueckner, V.*

- E. Scherrer, and R. Tousey. **205**, L47, 32-D4 (1976)
- Absolute Solar Ultraviolet Intensities and Their Variations with Solar Activity. I. The Wavelength Region 1750-2100 Å. G. E. Brueckner, J. -D. F. Bartoe, O. Kjeldseth Moe, and M. E. VanHoosier. **209**, 935, 100-G13 (1976)
- BRUNE, W. H. Carbon Production in Comet West 1975n. P. D. Feldman and W. H. Brune. **209**, L45, 92-D2 (1976)
- BRUNER, E. C., JR. Preliminary Results from the Orbiting Solar Observatory 8: Transition-Zone Dynamics over a Sunspot. E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. A. Shine, R. G. Athay, and O. R. White. **210**, L97, 111-D11 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Velocities in the Solar Chromosphere Observed in the Si II λ 1816 Line. E. G. Chipman, E. C. Bruner, Jr., R. A. Shine, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White. **210**, L103, 111-E4 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White. **210**, L107, 111-E8 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Persistent Velocity Fields in the Chromosphere and Transition Region. B. W. Lites, E. C. Bruner, Jr., E. G. Chipman, R. A. Shine, G. J. Rottman, O. R. White, and R. G. Athay. **210**, L111, 111-E12 (1976)
- BRYAN, J. Light Curve of Nova V1500 Cygni 1975. P. J. Young, H. G. Corwin, Jr., J. Bryan, and G. de Vaucouleurs. **209**, 882, 100-C11 (1976)
- BRZOWSKI, J. Predissociation Effects in the A, B, and C States of CH and the Interstellar Formation Rate of CH Inverse Predissociation. J. Brzowski, P. Bunker, N. Elander, and P. Erman. **207**, 414, 63-F8 (1976)
- BUCHLER, J. ROBERT. Compton Scattering Opacities in a Partially Degenerate Electron Plasma at High Temperatures. J. Robert Buchler and William R. Yueh. **210**, 440, 108-F3 (1976)
- BUFF, J. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. R. Duxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaile, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper. **203**, L9, 4-C12 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Duxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper. **204**, L67, 22-A10 (1976)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini. **206**, L99, 52-C4 (1976)
- A Fast Transient Source of Hard X-Rays at High Galactic Latitude. S. Rappaport, J. Buff, G. W. Clark, W. H. G. Lewin, T. Matilsky, and J. McClintock. **206**, L139, 56-D7 (1976)
- The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod. **210**, L127, 115-A12 (1976)
- BUFF, JAMES. Transfer of X-Rays through a Spherically Symmetric Gas Cloud. Stephen Hatchett, James Buff, and Richard McCray. **206**, 847, 54-F12 (1976)
- BUFFINGTON, ANDREW. Secondary Cosmic-Ray e^\pm from 1 to 100 GeV in the Upper Atmosphere and Interstellar Space, and Interpretation of a Recent e^\pm Flux Measurement. Charles D. Orth and Andrew Buffington. **206**, 312, 46-C7 (1976)
- BUHL, D. Radio Detection of Interstellar DCO⁺. J. M. Hollis, L. E. Snyder, F. J. Lovas, and D. Buhl. **209**, L83, 97-A1 (1976)
- BUHL, DAVID. Millimeter Emission Lines in Orion A. Frank J. Lovas, Donald R. Johnson, David Buhl, and Lewis E. Snyder. **209**, 770, 99-B6 (1976)
- BUNKER, P. Predissociation Effects in the A, B, and C States of CH and the Interstellar Formation Rate of CH Inverse Predissociation. J. Brzowski, P. Bunker, N. Elander, and P. Erman. **207**, 414, 63-F8 (1976)
- BURBIDGE, E. M. The Absorption-Line Spectrum of the BL Lacertae Object AO 0235+164. E. M. Burbidge, R. D. Caldwell, Harding E. Smith, J. Liebert, and H. Spinrad. **205**, L117, 42-A10 (1976)
- BURBIDGE, E. MARGARET. Observations of High-Redshift QSOs from a Molonglo Faint Source Survey. Jack A. Baldwin, Harding E. Smith, E. Margaret Burbidge, Cyril Hazard, Hugh S. Murdoch, and David L. Jauncey. **206**, L83, 52-A13 (1976)
- Photography of 3CR Radio Source Fields: Three New Optical Identifications. Harding E. Smith, E. Margaret Burbidge, and Hyron Spinrad. **210**, 627, 112-A4 (1976)
- BURBIDGE, G. R. The Log N-Log S Curve for 3CR Radio Galaxies and the Problem of Identifying Faint Radio Galaxies. G. R. Burbidge and J. V. Narlikar. **205**, 329, 33-B8 (1976)
- BURBIDGE, GEOFFREY. On the Masses of the Quasi-stellar Objects. Geoffrey Burbidge and Judith Perry. **205**, L55, 37-A2 (1976)
- BURGER, HARRY L. The Accreting Component of Mass-Exchange Binaries. Roger K. Ulrich and Harry L. Burger. **206**, 509, 49-F13 (1976)
- BURGESS, ALAN. Dielectronic Recombination to Form Helium-like Ions. Alan Burgess and A. S. Twoowski. **205**, L105, 37-D4 (1976)
- BURGINYON, G. An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. F. Seward, G. Burginyon, R. Grader, R. Hill, T. Palmieri, P. Stoering, and A. Toor. **205**, 238, 30-E8 (1976)
- BURKE, ANTHONY J. The 35 Day Cycle of Hercules X-1. Anthony J. Burke. **209**, 556, 95-D8 (1976)
- BURKE, B. F. 6 Centimeter Observations of Radio Galaxies over a 228 Kilometer Baseline. R. C. Walker, K. Y. Lo, B. F. Burke, K. J. Johnston, and J. M. Moran. **208**, 296, 78-B10 (1976)
- BURKE, JOHN ROBERT. The Dynamical Interaction of a Newly Formed Protostar with Infalling Matter: The Origin of Interstellar Grains. John Robert Burke and Joseph Silk. **210**, 341, 107-E12 (1976)
- BURKE, WILLIAM L. On the Detectability of Gravitational Waves from W Ursae Majoris Binary Stars. William L. Burke. **203**, 694, 10-D7 (1976)
- BURLAGA, L. F. Interplanetary Stream Magnetism: Kinematic Effects. L. F. Burlaga and E. Barouch. **203**, 257, 3-F13 (1976)
- BURTON, W. B. Carbon Monoxide in the Galaxy. II. The Thickness of the Galactic CO Layer. W. B. Burton and M. A. Gordon. **207**, L189, 72-D11 (1976)
- Carbon Monoxide in the Galaxy. I. The Radial Distribution of CO, H₂, and Nucleons. M. A. Gordon and W. B. Burton. **208**, 346, 78-F4 (1976)
- BUSSOLETTI, E. Infrared Line Emission from the Orion Nebula: Detection of [S III] (18.71 μ) and [O III] (88.35 μ). J. -P. Baluteau, E. Bussoletti, M. Anderegg, A. F. M. Moorwood, and N. Coron. **210**, L45, 106-E1 (1976)
- BUTCHER, H. R. 3C 66 A: A BL Lacertae Object in a Distant, Rich Cluster of Galaxies. H. R. Butcher, A. Oemler, Jr., S. Tapia, and M. Tarengi. **209**, L11, 92-A10 (1976)
- On s-Process Abundance Evolution in the Galactic Disk. H. R. Butcher. **210**, 489, 109-B11 (1976)
- BUTLER, DENNIS. Metal Abundances of RR Lyrae Variables in Selected Galactic Star Fields. I. Baade's Window. Dennis Butler, Duane Carbon, and Robert P. Kraft. **210**, 120, 104-D1 (1976)
- BUTTERWORTH, E. MANNING. On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. I. The

- Numerical Method for Computing Structure and Its Application to Uniformly Rotating Homogeneous Bodies. *E. Manning Butterworth and James R. Ipser*. **204**, 200, 15-C1 (1976)
- On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. II. The Structure of Uniformly Rotating Pseudopolitropes. *E. Manning Butterworth*. **204**, 561, 20-E11 (1976)
- BYL, JOHN. On the Nonexpansion of the Galaxy. *Michael W. Ovenden and John Byl*. **206**, 57, 43-E4 (1976)
- BYRD, GENE G. A Computer Model of the Origin of H I Radial Velocity Asymmetries in M31. *Gene G. Byrd*. **208**, 688, 83-F1 (1976)
- CAHN, J. H. The Birthrate of Planetary Nebulae. *J. H. Cahn and S. P. Wyatt*. **210**, 508, 109-D3 (1976)
- CALDWELL, R. D. The Absorption-Line Spectrum of the BL Lacertae Object AO 0235+164. *E. M. Burbidge, R. D. Caldwell, Harding E. Smith, J. Liebert, and H. Spinrad*. **205**, L117, 42-A10 (1976)
- CAMPBELL, BRUCE. H-Alpha Variations in Nova Cygni 1975. *Bruce Campbell*. **207**, L41, 62-D9 (1976)
- Circular Polarization Observations of the Interstellar Magnetic Field. *P. G. Martin and Bruce Campbell*. **208**, 727, 84-B1 (1976)
- CAMPBELL, M. F. Far-Infrared Observations of IRC +10216. *M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook*. **208**, 396, 79-C1 (1976)
- CAMPBELL, MURRAY F. High-Resolution Far-Infrared Observations of the Galactic Center. *Paul M. Harvey, Murray F. Campbell, and William F. Hoffman*. **205**, L69, 37-B1 (1976)
- CANFIELD, RICHARD C. Emission Lines in the Wings of Ca II H and K. I. Initial Solar Observations and Implications. *Richard C. Canfield and Robert E. Stencel*. **209**, 618, 96-B3 (1976)
- Magnetic Field Reconnection in the Flare of 18:28 UT 1975 August 10. *Richard C. Canfield and Richard R. Fisher*. **210**, L149, 115-C4 (1976)
- CANIZARES, C. R. OSO-7 Observations of High Galactic Latitude X-Ray Sources. *T. H. Markert, C. R. Canizares, G. W. Clark, F. K. Li, P. L. Northridge, G. F. Sprott, and G. F. Wargo*. **206**, 265, 45-F13 (1976)
- CANIZARES, CLAUDE R. X-Ray Reverberations and the Giant X-Ray Bursts. *Claude R. Canizares*. **207**, L101, 67-C3 (1976)
- CANUTO, V. Inhomogeneities in the Early Universe. *V. Canuto*. **205**, 659, 38-A4 (1976)
- CAPPS, R. W. Infrared Polarization of the Galactic Center. *R. W. Capps and R. F. Knacke*. **210**, 76, 103-G10 (1976)
- The Polarization of BL Lacertae at Visible and Infrared Wavelengths. *R. F. Knacke, R. W. Capps, and M. Johns*. **210**, L69, 111-B8 (1976)
- CARBON, D. F. Departures from LTE in the Fundamental Bands of CO in Cool Stars. *D. F. Carbon, R. W. Milkey, and J. N. Heasley*. **207**, 253, 60-F7 (1976)
- CARBON, DUANE. Metal Abundances of RR Lyrae Variables in Selected Galactic Star Fields. I. Baade's Window. *Dennis Butler, Duane Carbon, and Robert P. Kraft*. **210**, 120, 104-D1 (1976)
- CARDIASMENOS, A. G. Water Vapor Emission from H II Regions and Infrared Stars. *B. T. Cato, B. O. Rönnäng, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardiasmenos, and J. F. Shanley*. **208**, 87, 74-G11 (1976)
- CARLETON, N. P. Detection of O₂ Dayglow Emission from Mars and the Martian Ozone Abundance. *J. F. Noxon, W. A. Traub, N. P. Carleton, and P. Connes*. **207**, 1025, 71-E13 (1976)
- CARLSON, JOHN B. The Variable Radio Nucleus of M81. *Patrick C. Crane, Thomas S. Giuffrida, and John B. Carlson*. **203**, L113, 11-D11 (1976)
- CAROFF, LAWRENCE J. Cloud Acceleration by Cosmic Rays in the Vicinity of Compact Luminous Objects. *Jean A. Eilek and Lawrence J. Caroff*. **208**, 887, 85-G2 (1976)
- CARPENTER, ROLAND. The Problem of Spiral Galaxies and Satellite Radio Sources. *Halton Arp, Roland Carpenter, Samuel Gulkis, and Michael Klein*. **205**, 721, 38-E12 (1976)
- CARR, BERNARD J. Some Cosmological Consequences of Primordial Black-Hole Evaporations. *Bernard J. Carr*. **206**, 8, 43-A11 (1976)
- CARR, THOMAS D. VLBI Measurements of Jovian S Bursts. *Michel A. Lynch, Thomas D. Carr, and Jorge May*. **207**, 325, 61-D9 (1976)
- CARROLL, P. K. Iron Hydride: Laboratory Studies and Solar Identification. *P. K. Carroll, P. McCormack, and S. O'Connor*. **208**, 903, 86-A4 (1976)
- CARRUTHERS, GEORGE R. Far-Ultraviolet Brightness of Nebulae in Cygnus. *George R. Carruthers and Thornton Page*. **205**, 397, 33-G12 (1976)
- CARSON, T. RICHARD. Evolutionary Problems of Cepheids and Other Giants Investigated with New Radiative Opacities. *T. Richard Carson and Richard Stothers*. **204**, 461, 19-E1 (1976)
- CARSWELL, R. F. The Redshift of 0938+119. *E. A. Beaver, R. Harms, C. Hazard, H. S. Murdoch, R. F. Carswell, and P. F. Strittmatter*. **203**, L5, 4-C6 (1976)
- 3C 68.1: A Very Red QSO with an Intermediate Redshift. *A. Boksenberg, R. F. Carswell, and J. B. Oke*. **206**, L121, 56-C2 (1976)
- CASH, WEBSTER. An Observation of the Diffuse Soft X-Ray/Extreme-Ultraviolet Background. *Webster Cash, Roger Malina, and Robert Stern*. **204**, L7, 17-A8 (1976)
- A Soft X-Ray Map of the Perseus Cluster of Galaxies. *Webster Cash, Roger F. Malina, and Richard S. Wolff*. **209**, L111, 101-D7 (1976)
- CASSÉ, M. Distribution of Gas, Magnetic Fields, and Cosmic Rays in the Galaxy. *J. Paul, M. Cassé, and C. J. Cesarsky*. **207**, 62, 58-E12 (1976)
- CASSEN, PATRICK. Steady Accretion of a Rotating Fluid. *Patrick Cassen and Donald Pettibone*. **208**, 500, 80-D3 (1976)
- CASSINELLI, JOSEPH P. Theoretical Wavelength Dependence of Polarization in Early-Type Stars. *Bernhard M. Haisch and Joseph P. Cassinelli*. **208**, 253, 76-F3 (1976)
- CATO, B. T. Water Vapor Emission from H II Regions and Infrared Stars. *B. T. Cato, B. O. Rönnäng, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardiasmenos, and J. F. Shanley*. **208**, 87, 74-G11 (1976)
- CATURA, R. C. X-Ray Structure of the Puppis Supernova Remnant. *R. C. Catura and L. W. Acton*. **207**, L163, 72-B13 (1976)
- CAVALIERE, A. Propagation of Blast Waves. *A. Cavaliere and A. Messina*. **209**, 424, 94-B1 (1976)
- CAVES, CARLTON M. Theoretical Frameworks for Testing Relativistic Gravity. V. Post-Newtonian Limit of Rosen's Theory. *David L. Lee, Carlton M. Caves, Wei-Tou Ni, and Clifford M. Will*. **206**, 555, 50-C3 (1976)
- CERNY, D. Experimental Oscillator Strengths in the C₂ ($A^1[u-X^1\Sigma^+g]$) Phillips Band System. *F. Roux, D. Cerny, and J. D'Incan*. **204**, 940, 26-C1 (1976)
- CERTAIN, PHILLIP R. Interstellar COH⁺. *Eric Herbst, Joseph M. Norbeck, Phillip R. Certain, and William Klemperer*. **207**, 110, 59-B11 (1976)
- CESARSKY, C. J. Distribution of Gas, Magnetic Fields, and Cosmic Rays in the Galaxy. *J. Paul, M. Cassé, and C. J. Cesarsky*. **207**, 62, 58-E12 (1976)
- CESS, ROBERT D. Laboratory Band Strengths of Methane and Their Application to the Atmospheres of Jupiter, Saturn, Uranus, Neptune, and Titan. *Barry L. Lutz, Tobias Owen, and Robert D. Cess*. **203**, 541, 7-G4 (1976)
- CHAISSON, ERIC J. A Radio Recombination-Line Study of the Planetary Nebula NGC 7027. *Eric J. Chaisson and Matthew A. Malkan*. **210**, 108, 104-C1 (1976)

- CHAISSON, LOLA J. *Uhuru* Observations of 4U 1608-52: The "Steady" X-Ray Source Associated with the X-Ray Burst Source Norma. *H. Tananbaum, Lola J. Chaisson, W. Forman, C. Jones, and T. A. Matilsky*. **209**, L125, 101-E13 (1976)
- CHANAN, GARY A. The Geometry of the Eclipse of a Pointlike Star by a Roche-Lobe-Filling Companion. *Gary A. Chanan, John Middleditch, and Jerry E. Nelson*. **208**, 512, 80-E1 (1976)
- CHAPMAN, CLARK R. Radiometric Diameters for an Additional 22 Asteroids. *David Morrison and Clark R. Chapman*. **204**, 934, 26-B8 (1976)
- CHAPMAN, R. D. The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
- CHARLAND, YVES. Diffusion in Main-Sequence Stars: Radiation Forces, Time Scales, Anomalies. *Georges Michaud, Yves Charland, Sylvie Vaclair, and Gérard Vaclair*. **210**, 447, 108-F10 (1976)
- CHARLES, P. A. The X-Ray Structure of the Perseus Cluster of Galaxies. *R. S. Wolff, R. J. Mitchell, P. A. Charles, and J. L. Culhane*. **208**, 1, 74-A4 (1976)
- Periodic Modulation of Three Galactic X-Ray Sources. *N. E. White, K. O. Mason, H. E. Huckle, P. A. Charles, and P. W. Sanford*. **209**, L119, 101-E5 (1976)
- CHAU, W. Y. Orbital Evolution of a Singly Condensed, Close Binary by Mass Loss from the Primary and by Accretion Drag on the Condensed Member. *M. E. Alexander, W. Y. Chau, and R. N. Henriksen*. **204**, 879, 25-E6 (1976)
- CHENG, ANDREW. Current Flow in Pulsar Magnetospheres. *Andrew Cheng, Malvin Ruderman, and Peter Sutherland*. **203**, 209, 3-C5 (1976)
- CHENG, CHUNG-CHIEH. The Emission-Line Spectrum of a Sunspot in the Far-Ultraviolet. *Chung-Chieh Cheng, G. A. Doschek, and U. Feldman*. **210**, 836, 114-C7 (1976)
- CHESLEY, SUZAN EDWARDS. Beryllium and Post-Main-Sequence Evolution. *Ann Merchant Boesgaard and Suzan Edwards Chesley*. **210**, 475, 109-A11 (1976)
- CHEUNG, A. C. Collisional Excitation of Λ Doublet Transitions in CH and OH. *M. Bertolo, A. C. Cheung, and C. H. Townes*. **208**, 914, 86-B6 (1976)
- CHEUNG, C. Y. Significance of Medium-Energy Gamma-Ray Astronomy in the Study of Cosmic Rays. *C. E. Fichtel, D. A. Kniffen, D. J. Thompson, G. F. Bignami, and C. Y. Cheung*. **208**, 211, 76-C2 (1976)
- CHEVALIER, ROGER A. Cosmic-Ray Acceleration and the Radio Evolution of Cassiopeia A. *Roger A. Chevalier, John W. Robertson, and John S. Scott*. **207**, 450, 64-B5 (1976)
- The Hydrodynamics of Type II Supernovae. *Roger A. Chevalier*. **207**, 872, 70-A2 (1976)
- Cassiopeia A, Faint Supernovae, and Heavy-Element Ejection by Supernovae. *Roger A. Chevalier*. **208**, 826, 85-B10 (1976)
- CHIN, CHAO-WEN. Stellar Evolution at High Mass with Semiconvective Mixing According to the Schwarzschild Criterion. *Richard Stothers and Chao-wen Chin*. **204**, 472, 19-E12 (1976)
- CHINCARINI, GUIDO. The Coma Supercluster: Analysis of Zwicky-Herzog Cluster 16 in Field 158. *Guido Chincarini and Herbert J. Rood*. **206**, 30, 43-C5 (1976)
- Photometry of the "Seyfert Sextet" (VV 115) and the Anonymous Galaxy 1558.2+2100. *Donald H. Martins and Guido Chincarini*. **209**, 372, 93-E2 (1976)
- CHIPMAN, E. G. Preliminary Results from the Orbiting Solar Observatory 8: Transition-Zone Dynamics over a Sunspot. *E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. A. Shine, R. G. Athay, and O. R. White*. **210**, L97, 111-D11 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Velocities in the Solar Chromosphere Observed in the Si II 1816 Line. *E. G. Chipman, E. C. Bruner, Jr., R. A. Shine, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White*. **210**, L103, 111-E4 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. *R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White*. **210**, L107, 111-E8 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Persistent Velocity Fields in the Chromosphere and Transition Region. *B. W. Lites, E. C. Bruner, Jr., E. G. Chipman, R. A. Shine, G. J. Rottman, O. R. White, and R. G. Athay*. **210**, L111, 111-E12 (1976)
- CHRISTENSEN, R. B. Calculation of the Cross Section for C IV-H Charge Exchange: Significance for Interstellar X-Rays/Cosmic-Ray Particles. *R. J. Blint, W. D. Watson, and R. B. Christensen*. **205**, 634, 36-D2 (1976)
- CHRISTIANSEN, JOHN H. A Dynamical Study of NGC 4027. *John H. Christiansen and William H. Jefferys*. **205**, 52, 28-E2 (1976)
- CHU, SHIH-I. Collisionally Induced Hyperfine-Structure Transitions of OH. *Shih-I. Chu*. **206**, 640, 51-C2 (1976)
- H₂ in Expanding Circumstellar Shells. *David Hollenbach, Shih-I. Chu, and Richard McCray*. **208**, 458, 79-G13 (1976)
- CHUI, M. F. Observations of the ¹²C/¹³C Ratio in Four Galactic Sources of Formaldehyde. *D. N. Matsakis, M. F. Chui, P. F. Goldsmith, and C. H. Townes*. **206**, L63, 47-E11 (1976)
- CLARDY, K. D. Upper Limits for the Visible Counterpart of the Hulse-Taylor Binary Pulsar. *J. Kristian, K. D. Clardy, and J. A. Westphal*. **206**, L143, 56-D12 (1976)
- CLARK, F. O. Detection of Interstellar Vibrationally Excited Cyanoacetylene. *F. O. Clark, R. D. Brown, P. D. Godfrey, J. W. V. Storey, and D. R. Johnson*. **210**, L139, 115-B9 (1976)
- CLARK, G. A Fast Transient Source of Hard X-Rays at High Galactic Latitude. *S. Rappaport, J. Buff, G. Clark, W. H. G. Lewin, T. Matilsky, and J. McClintock*. **206**, L139, 56-D7 (1976)
- Detection of X-Rays from Algol (β Persei). *H. W. Schnopper, J. P. Delvaille, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Dossy*. **210**, L75, 111-C1 (1976)
- CLARK, G. W. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Dossy, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaille, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper*. **203**, L9, 4-C12 (1976)
- MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport*. **203**, L21, 4-D11 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Dossy, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper*. **204**, L67, 22-A10 (1976)
- OSO-7 Observations of High Galactic Latitude X-Ray Sources. *T. H. Markert, C. R. Canizares, G. W. Clark, F. K. Li, P. L. Northridge, G. F. Sprott, and G. F. Wargo*. **206**, 265, 45-F13 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport*. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. *J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini*. **206**, L99, 52-C4 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Dossy, D. R.*

- Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson. **207**, L95, 67-B12 (1976)
- Evidence for the Binary Nature of A0535+26. S. Rappaport, P. C. Joss, H. Bradt, G. W. Clark, and J. G. Jernigan. **208**, L119, 86-G3 (1976)
- Detection of Soft X-Ray Emission from an Unidentified Source at High Galactic Latitude. D. R. Hearn, J. A. Richardson, and G. W. Clark. **210**, L23, 106-C6 (1976)
- Orbital Elements and Masses for the SMC X-1/Sanduleak 160 Binary System. F. Primini, S. Rappaport, P. C. Joss, G. W. Clark, W. Lewin, F. Li, W. Mayer, and J. McClintock. **210**, L71, 111-B10 (1976)
- The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod. **210**, L127, 115-A12 (1976)
- CLARK, GEORGE W. OSO-7 Observations of the X-Ray Nova 3U 1543-47. Fuk Kwok Li, George F. Sprott, and George W. Clark. **203**, 187, 3-A7 (1976)
- Discovery of X-Ray Bursts from MXB 1728-34. Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li. **210**, L13, 106-B11 (1976)
- CLARK, T. A. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönngang, O. E. H. Rydbeck, and A. E. Niell. **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr. **206**, L107, 52-C12 (1976)
- Meter-Wavelength VLBI. III. Pulsars. N. R. Vandenberg, T. A. Clark, W. C. Erickson, G. M. Resch, and J. J. Broderick. **207**, 937, 70-E12 (1976)
- CLAYTON, D. D. Grains of Anomalous Isotopic Composition from Novae. D. D. Clayton and F. Hoyle. **203**, 490, 7-C4 (1976)
- CLAYTON, DONALD D. Gamma-Ray Emission and Nucleosynthesis of Lithium by Young Pulsars. Donald D. Clayton and Eliahu Dwek. **206**, L59, 47-E7 (1976)
- s-Process Studies: Branching and the Time Scale. Richard A. Ward, Michael J. Newman, and Donald D. Clayton. **31**, 33, 11-E1 (1976) (Abstr. in **205**, 655, 36-E10)
- CLOUTMAN, LAWRENCE D. Comments on the Diffusion Model of Turbulent Mixing. Lawrence D. Cloutman and John G. Eoill. **206**, 548, 50-B10 (1976)
- COCKE, W. J. Theory of the Polarization of Pulsar Radio Radiation. W. J. Cocke and A. G. Pacholczyk. **204**, L13, 17-A13 (1976)
- CODE, A. D. Ultraviolet Photometry from the Orbiting Astronomical Observatory. XX1. Absolute Energy Distribution of Stars in the Ultraviolet. R. C. Bless, Code A. D., and E. T. Fairchild. **203**, 410, 6-C10 (1976)
- Empirical Effective Temperatures and Bolometric Corrections for Early-Type Stars. A. D. Code, J. Davis, R. C. Bless, and R. Hanbury Brown. **203**, 417, 6-D4 (1976)
- COHEN, G. G. Search for X-Ray Line Emission from A0620-00. H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff. **208**, L27, 77-B13 (1976)
- Measurement of the X-Ray Polarization of the Crab Nebula. M. C. Weisskopf, G. G. Cohen, H. L. Kestenbaum, K. S. Long, R. Novick, and R. S. Wolff. **208**, L125, 86-G8 (1976)
- The Graphite Crystal X-Ray Spectrometer on OSO-8. H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff. **210**, 805, 114-A2 (1976)
- COHEN, JUDITH G. H α Emission from the Disks of Spiral Galaxies. Judith G. Cohen. **203**, 587, 9-C7 (1976)
- Mass Loss in Globular-Cluster Red Giants. Judith G. Cohen. **203**, L127, 11-E10 (1976)
- COHEN, L. The Solar Spectrum: Wavelengths and Identifications from 160 to 770 Angstroms. W. E. Behring, L. Cohen, U. Feldman, and G. A. Doschek. **203**, 527, 7-E11 (1976)
- COHEN, M. H. Rapid Increase in the Size of 3C 345. M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart. **206**, L1, 47-A2 (1976)
- COHEN, MARTIN. Deep Ice Absorption in A Peculiar Infrared Source. Martin Cohen. **203**, 169, 2-G3 (1976)
- Spectrophotometric Studies of Young Stars. I. The Cepheus IV Association. Martin Cohen and Leonard V. Kuhi. **210**, 365, 107-G8 (1976)
- COLEMAN, G. D. TV Spectroscopy of Absorption Lines in the Far-Red of PHL 957. G. R. Gilbert, J. R. P. Angel, S. A. Grandi, G. D. Coleman, P. A. Strittmatter, R. H. Cromwell, and E. B. Jensen. **206**, L129, 56-C12 (1976)
- COLGATE, S. A. Stimulated Compton Scattering and Quasar Luminosity. Albert G. Petschek, S. A. Colgate, and Jeffrey D. Colvin. **209**, 356, 93-D5 (1976)
- COLLINS, LEE A. Model Galactic Coronae: Ionization Structure and Absorption-Line Spectra. Jon G. Weisheit and Lee A. Collins. **210**, 299, 107-B10 (1976)
- COLMAN, GARY D. Mass Loss from Dwarf M Stars through Stellar Flaring. Gary D. Colman and Simon P. Worden. **205**, 475, 34-F11 (1976)
- COLVIN, JEFFREY D. Stimulated Compton Scattering and Quasar Luminosity. Albert G. Petschek, S. A. Colgate, and Jeffrey D. Colvin. **209**, 356, 93-D5 (1976)
- COMBI, M. R. The Production Rate and Possible Origin of O (D) in Comet Bennett 1970 II. A. Delsemme and M. R. Combi. **209**, L149, 101-G11 (1976)
- Production Rate and Origin of H $_2$ O $^+$ in Comet Bennett 1970 II. A. H. Delsemme and M. R. Combi. **209**, L153, 102-A1 (1976)
- CONDON, J. J. 3C 286: A Cosmological QSO? A. M. Wolfe, J. J. Broderick, J. J. Condon, and K. J. Johnston. **208**, L47, 82-A2 (1976)
- Accurate Optical Positions of Bright Galaxies. L. L. Dressel and J. J. Condon. **31**, 187, 14-D1 (1976) (Abstr. in **205**, 342, 46-E10)
- CONDON, JAMES J. Redshifts of Southern Radio Sources. Bruce A. Peterson, David L. Jauncey, Alan E. Wright, and James J. Condon. **207**, L5, 62-A6 (1976)
- CONNER, J. P. The Discovery of X-Ray Bursts from a Region in the Constellation Norma. R. D. Belian, J. P. Conner, and W. D. Evans. **206**, L135, 56-D3 (1976)
- A Preliminary Sky Map of Brief X-Ray Transients. R. D. Belian, J. P. Conner, and W. D. Evans. **207**, L33, 62-D1 (1976)
- Observations of Intense Cosmic X-Ray Bursts. W. D. Evans, R. D. Belian, and J. P. Conner. **207**, L91, 67-B8 (1976)
- CONNES, P. Detection of O $_2$ Dayglow Emission from Mars and the Martian Ozone Abundance. J. F. Noxon, W. A. Traub, N. P. Carleton, and P. Connes. **207**, 1025, 71-E13 (1976)
- CONTI, PETER S. Spectroscopic Studies of O-Type Binaries. I. BD +40°4220: An Enigma Ripe for Resolution. Bruce Bohannon and Peter S. Conti. **204**, 797, 24-F8 (1976)
- Spectroscopic Studies of O-Type Binaries. II. HD 93205, O3 V, in the Carina Nebula. Peter S. Conti and Nolan R. Walborn. **207**, 502, 64-F10 (1976)
- A Change in the Optical Spectrum of Zeta Puppis. Peter S. Conti and Virpi S. Niemela. **209**, L37, 92-C9 (1976)
- CONTOPOULOS, G. The Center of Mass in the Post-Newtonian Approximation of General Relativity. G. Contopoulos and

- N. Spyrou. **205**, 592, 36-A3 (1976)
- COOK, J. M. Laboratory Observations of the 16 GHz Rotational Transition in NH_2 . G. W. Hills and J. M. Cook. **209**, L157, 102-A5 (1976)
- CORDES, J. M. Correlation Analyses of Microstructure and Noiselike Intensity Fluctuations from Pulsar 2016+28. J. M. Cordes. **208**, 944, 86-D7 (1976)
- Pulsar Radiation as Polarized Shot Noise. J. M. Cordes. **210**, 780, 113-F5 (1976)
- CORON, N. Infrared Line Emission from the Orion Nebula: Detection of [S III] (18.71μ) and [O III] (88.35μ). J. -P. Baluteau, E. Bussolletti, M. Anderegg, A. F. M. Moorwood, and N. Coron. **210**, L45, 106-E1 (1976)
- CORONITI, F. V. The Scattering of Cosmic Rays by Magnetic Bubbles. R. F. Flewelling and F. V. Coroniti. **205**, L135, 42-B13 (1976)
- CORONITI, FERDINAND V. Jovian Sodium Plasma. Aharon Eviatar, Yuri Mekler, and Ferdinand V. Coroniti. **205**, 622, 36-C6 (1976)
- CORSO, GEORGE J. Critique of Bell and Fort's Quasar Model. Jeno M. Barnothy and George J. Corso. **204**, 337, 18-B12 (1976)
- CORWIN, H. G., JR. Light Curve of Nova V1500 Cygni 1975. P. J. Young, H. G. Corwin, Jr., J. Bryan, and G. de Vaucouleurs. **209**, 882, 100-C11 (1976)
- COTTON, W. D. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell. **206**, L75, 52-A2 (1976)
- COTTON, WILLIAM D. Observations of Radio Sources with Variable Flux Density at 365 and 380 MHz. William D. Cotton. **204**, L63, 22-A6 (1976)
- Observations of Radio Sources with Variable Flux Density at 365 and 380 MHz: Erratum. William D. Cotton. **209**, L53, 92-D10 (1976) (Orig. paper in **204**, L63, 22-A6)
- The University of Texas Low-Frequency Variable Radio Source Survey. William D. Cotton. **32**, 467, 30-E1 (1976) (Abstr. in **209**, 648, 96-D9)
- COUNSELMAN, C. C., III. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell. **206**, L75, 52-A2 (1976)
- Further Changes in the Distribution of Density and Radio Scattering in the Solar Corona in 1973. J. M. Weisberg, J. M. Rankin, R. R. Payne, and C. C. Counselman III. **209**, 252, 90-F1 (1976)
- COWIE, LENNOX L. Extragalactic Diffuse Neutral Hydrogen Clouds: Probes of a Hot Intergalactic Medium. Lennox L. Cowie and Christopher F. McKee. **209**, L105, 101-D2 (1976)
- COWLEY, A. P. HD 47129: The Most Massive Binary. J. B. Hutchings and A. P. Cowley. **206**, 490, 49-E7 (1976)
- Subdwarfs among the Old Disk Population. F. D. A. Hartwick, D. Crampton, and A. P. Cowley. **208**, 776, 84-F2 (1976)
- COWLEY, ANNE P. Spectroscopic Analysis of Scorpius X-1. David Crampton, Anne P. Cowley, J. B. Hutchings, and C. Kaat. **207**, 907, 70-C10 (1976)
- The Radio-flaring Triple System b Persei. Graham Hill, G. C. L. Aikman, Anne P. Cowley, C. T. Bolton, and J. C. Thomas. **208**, 152, 75-E12 (1976)
- COWLEY, CHARLES R. The Application of the Diffusion Hypothesis to Extreme Overabundance Factors in Ap Stars. Charles R. Cowley and Carol A. Day. **205**, 440, 34-D3 (1976)
- A Survey of Peculiar and Metallic-lined A Stars for the Actinides. Charles R. Cowley, G. C. L. Aikman, and M. R. Hartoog. **206**, 196, 45-A10 (1976)
- Yttrium, Barium, and the Lanthanides in Ap and Am Stars. Charles R. Cowley. **32**, 631, 33-E1 (1976) (Abstr. in **210**, 621, 110-E14)
- COX, ARTHUR N. Radiative Opacity Tables of 40 Stellar Mixtures. Arthur N. Cox and James E. Tabor. **31**, 271, 15-G1 (1976) (Abstr. in **206**, 342, 46-E10)
- COX, DONALD P. Accretion by the Galaxy: Effects of Radiative Cooling on the Flow Structure and Infall Rate. Donald P. Cox and Barham W. Smith. **203**, 361, 5-F11 (1976)
- Radiative Cooling of a Low-Density Plasma. John C. Raymond, Donald P. Cox, and Barham W. Smith. **204**, 290, 16-C1 (1976)
- COYNE, GEORGE V., S.J. Polarization from a Dust Ring Surrounding the Peculiar Be Star HD 45677. George V. Coyne S.J. and Frederick J. Vrba. **207**, 790, 69-B1 (1976)
- CRABTREE, DENNIS R. Carbon Stars in the Large Magellanic Cloud. Dennis R. Crabtree, Harvey B. Richer, and B. E. Westerlund. **203**, L81, 8-D10 (1976)
- CRABTREE, E. R. Four-Point Optical Energy Distributions for Faint BL Lacertae Objects. S. Tapia, E. R. Craine, and Keith Johnson. **203**, 291, 5-A10 (1976)
- CRABTREE, ERIC R. On the Nature of IRC +10420. Eric R. Craine, William J. Schuster, S. Tapia, and Frederick J. Vrba. **205**, 802, 39-E1 (1976)
- Radio and Optical Observations of the Radio Source OX 029. Eric R. Craine and John W. Warner. **206**, 359, 48-B10 (1976)
- CRAM, THOMAS R. Small-Scale Structure in High-Velocity Clouds. Eric W. Greisen and Thomas R. Cram. **203**, L119, 11-E3 (1976)
- CRAMPTON, D. Subdwarfs among the Old Disk Population. F. D. A. Hartwick, D. Crampton, and A. P. Cowley. **208**, 776, 84-F2 (1976)
- CRAMPTON, DAVID. The Binary Frequency of IC 4665. David Crampton, Graham Hill, and W. A. Fisher. **204**, 502, 20-A1 (1976)
- Spectroscopic Analysis of Scorpius X-1. David Crampton, Anne P. Cowley, J. B. Hutchings, and C. Kaat. **207**, 907, 70-C10 (1976)
- CRANE, PATRICK C. The Variable Radio Nucleus of M81. Patrick C. Crane, Thomas S. Giuffrida, and John B. Carlson. **203**, L113, 11-D11 (1976)
- 1749+70.1/NGC 6503: A New Quasar/Galaxy Pair. Patrick C. Crane and R. M. Price. **207**, L21, 62-C1 (1976)
- CRANE, PHILIPPE. On the Correlation between Color and Absolute Magnitude in First Ranked Cluster Galaxies. Philippe Crane. **206**, L133, 56-D1 (1976)
- CRANNELL, CAROL JO. Solar Gamma-Ray Lines as Probes of Accelerated Particle Directionalities in Flares. Reuven Ramaty and Carol Jo Crannell. **203**, 766, 11-C4 (1976)
- Formation of the 0.511 MeV line in Solar Flares. Carol Jo Crannell, Glenn Joyce, Reuven Ramaty, and Carl Wertz. **210**, 582, 110-C2 (1976)
- CRAWFORD, J. P. Stellar Neutrino Pair Emission from De-excitation of Nuclear State via Weak Neutral Currents. J. P. Crawford, C. J. Hansen, and K. T. Mahanthappa. **206**, 208, 45-B8 (1976)
- CROMWELL, R. H. A Reinvestigation of the Scattering Halo of M82 Based on Polarimetric and Isophotal Maps. Gary D. Schmidt, J. R. P. Angel, and R. H. Cromwell. **206**, 888, 55-C1 (1976)
- TV Spectroscopy of Absorption Lines in the Far-Red of PHL 957. G. R. Gilbert, J. R. P. Angel, S. A. Grandi, G. D. Coleman, P. A. Strittmatter, R. H. Cromwell, and E. B. Jensen. **206**, L129, 56-C12 (1976)
- CROSA, L. Analysis of Periodic Optical Variability in the Compact X-Ray Source Hercules X-1/HZ Herculis. J. Deeter, L. Crosa, D. Gerend, and P. Boynton. **206**, 861, 55-A1 (1976)
- CRUDDACE, R. G. X-Ray Evidence for the Supernova Origin of the North Polar Spur. R. G. Cruddace, H. Friedman, G. Fritz, and S. Shulman. **207**, 888, 70-B6 (1976)
- CRUDDACE, RAY. An Ultrasoft X-Ray Source in Coma

- Berenices. Bruce Margon, Roger Malina, Stuart Bowyer, Ray Cruddace, and Michael Lampton. **203**, L25, 4-E1 (1976)
- CRUDDACE, RAYMOND. Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources. Patrick Henry, Stuart Bowyer, Michael Lampton, Francesco Paresce, and Raymond Cruddace. **205**, 426, 34-C3 (1976)
- CRUIKSHANK, DALE P. Surface Compositions of the Satellites of Saturn from Infrared Photometry. David Morrison, Dale P. Cruikshank, Carl B. Pilcher, and George H. Rieke. **207**, L213, 72-F9 (1976)
- CRUTCHER, R. M. Radio Observations of OH in Comet West 1975n. L. E. Snyder, J. C. Webber, R. M. Crutcher, and G. W. Swenson, Jr. **209**, L49, 92-D6 (1976)
- CRUTCHER, RICHARD M. Detection and Significance of the Interstellar OH Line $\lambda 3078$. Richard M. Crutcher and William D. Watson. **203**, L123, 11-E6 (1976)
- Accurate Positions of OH Emission Sources. N. J. Evans II, Richard M. Crutcher, and W. J. Wilson. **206**, 440, 49-A10 (1976)
- Comparison of Optical Radio Column-Density Measurements toward Omicron Persei and Zeta Ophiuchi. Richard M. Crutcher. **206**, L171, 56-F10 (1976)
- Depletion of Heavy Elements toward the Rho Ophiuchi Dust Cloud. Richard M. Crutcher. **208**, 382, 79-B1 (1976)
- Upper Limit and Significance of the NH Molecule in Diffuse Interstellar Clouds. Richard M. Crutcher and William D. Watson. **209**, 778, 99-C1 (1976)
- CRUZ-GONZALEZ, C. On the Number of Planetary Nebulae in our Galaxy. D. Alloin, C. Cruz-González, and M. Peimbert. **205**, 74, 28-G1 (1976)
- CULHANE, J. L. X-Ray Spectra of Cassiopeia A and Tycho's Supernova Observed with Ariel-5. P. J. N. Davison, J. L. Culhane, and R. J. Mitchell. **206**, L37, 47-C12 (1976)
- The X-Ray Structure of the Perseus Cluster of Galaxies. R. S. Wolff, R. J. Mitchell, P. A. Charles, and J. L. Culhane. **208**, 1, 74-A4 (1976)
- Detection of an Extreme-Ultraviolet Source in the Southern Sky. Patrick Henry, Stuart Bowyer, C. G. Rapley, and J. L. Culhane. **209**, L29, 92-C2 (1976)
- CULVER, ROGER B. Space Velocity of the Nearby Subdwarf M Star AC +54°1646-56. Philip A. Ianna and Roger B. Culver. **203**, L137, 11-F4 (1976)
- CUNNINGHAM, CHRIS. Returning Radiation in Accretion Disks around Black Holes. Chris Cunningham. **208**, 534, 80-F11 (1976)
- CUSHMAN, G. W. Evidence of Outward Flow of Plasma in a Coronal Hole. G. W. Cushman and W. A. Rense. **207**, L61, 62-E13 (1976)
- CZYK, S. J. A Spectrographic Survey of 21 Planetary Nebulae. J. B. Kaler, L. H. Aller, and S. J. Czyzak. **203**, 636, 9-G1 (1976)
- Electron Density Measurements in NGC 6720. Lawrence H. Aller, Harland W. Epps, and S. J. Czyzak. **205**, 798, 39-D9 (1976)
- Effects of Stellar Particle Irradiation on Interstellar Grains. S. J. Czyzak, J. M. Meese, and J. J. Santiago. **207**, 425, 63-G5 (1976)
- The Spectrum of NGC 7027. J. B. Kaler, L. H. Aller, S. J. Czyzak, and H. W. Epps. **31**, 163, 14-A2 (1976) (Abstr. in **206**, 343, 46-E11)
- DA COSTA, G. S. The Structure and Mass Function of the Globular Cluster M3. G. S. Da Costa and K. C. Freeman. **206**, 128, 44-C9 (1976)
- Evidence for a Central Massive Object in the X-Ray Cluster M15. Barry Newell, G. S. Da Costa, and John Norris. **208**, L55, 82-A10 (1976)
- DAHN, CONARD C. LP 380-5/6: A Binary System Containing a Late-Type Degenerate Star. Conard C. Dahn and Robert S. Harrington. **204**, L91, 22-C5 (1976)
- DALGARNO, A. Interstellar H₂: The Population of Excited Rotational States and the Infrared Response to Ultraviolet Radiation. J. H. Black and A. Dalgarno. **203**, L32, 2-D3 (1976)
- Fine-Structure Excitation of Carbon by Atomic Hydrogen Impact. Andrew W. Yau and A. Dalgarno. **206**, 652, 51-D4 (1976)
- DANA, ROGER A. Approximate Solutions of Radiative Transfer in Dusty Nebulae. II. Hydrogen and Helium. Roger A. Dana and Vahé Petrosian. **208**, 354, 78-F13 (1976)
- DANESE, L. Cosmological Turbulence Reexamined. A. M. Anile, L. Danese, G. De Zotti, and S. Motta. **205**, L59, 37-A6 (1976)
- DANZIGER, I. J. Supernova Ejecta in the Large Magellanic Cloud. I. J. Danziger and M. Dennefeld. **207**, 394, 63-E1 (1976)
- DAS, M. K. On the Magneto-rotating Polytrope. M. K. Das and J. N. Tandon. **209**, 233, 90-D7 (1976)
- DAVIDSEN, A. A Search for Optical Counterparts of Nine Galactic X-Rays Sources. A. Davidsen, R. Malina, and S. Bowyer. **203**, 448, 6-F12 (1976)
- Soft X-Rays from Hercules X-1 During the "Off" State. G. Fritz, S. Naranan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder. **207**, L29, 62-C11 (1976)
- DAVIDSEN, ARTHUR. An X-Ray Survey of BL Lacertae Objects. Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidsen, Keith O. Mason, and Peter W. Sanford. **207**, 359, 63-B6 (1976)
- Optical Pulsations in HZ Herculis. V. Pulse-Resolved Spectrophotometry. Bruce Margon, Arthur Davidsen, and Stuart Bowyer. **208**, L35, 77-C7 (1976)
- DAVIDSON, KRIS. Some Remarks concerning Lyman Continuum Emission in Quasar Spectra. Kris Davidson. **207**, 710, 68-C1 (1976)
- DAVIS, J. Empirical Effective Temperatures and Bolometric Corrections for Early-Type Stars. A. D. Code, J. Davis, R. C. Bless, and R. Hanbury Brown. **203**, 417, 6-D4 (1976)
- DAVIS, MARC. Galaxy Correlations as a Function of Morphological Type. Marc Davis and Margaret J. Geller. **208**, 13, 74-B3 (1976)
- DAVIS, ROBERT J. The Galactic Distribution of Interstellar Absorption as Determined from the *Celestia* Catalog of Ultraviolet Stellar Observations and a New Catalog of UV, H-Beta Photoelectric Observations. William A. Deutschman, Robert J. Davis, and Rudolph E. Schild. **30**, 97, 3-A2 (1976) (Abstr. in **203**, 284, 4-A12)
- DAVIS, SUMNER P. A New $\Sigma^+ \Sigma^-$ System of the ZrO Molecule. John G. Phillips and Sumner P. Davis. **206**, 632, 51-B4 (1976)
- The $[\text{X}^+ \Sigma^+]$ System of Zirconium Oxide. John G. Phillips and Sumner P. Davis. **32**, 537, 32-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- DAVISON, P. J. N. X-Ray Spectra of Cassiopeia A and Tycho's Supernova Observed with Ariel-5. P. J. N. Davison, J. L. Culhane, and R. J. Mitchell. **206**, L37, 47-C12 (1976)
- DAY, CAROL A. The Application of the Diffusion Hypothesis to Extreme Overabundance Factors in Ap Stars. Charles R. Cowley and Carol A. Day. **205**, 440, 34-D3 (1976)
- DAY, KENRICK L. Temperature Dependence of Mid-Infrared Silicate Absorption. Kenrick L. Day. **203**, L99, 8-E12 (1976)
- Further Measurements of Amorphous Silicates. Kenrick L. Day. **210**, 614, 110-E6 (1976)
- DAYTON, BRUCE. A Cosmic Gamma-Ray Burst on 1975 May 14. Dennis Herzo, Bruce Dayton, Allen D. Zych, and R. Stephen White. **203**, L115, 11-D13 (1976)
- DEAN, CHARLES A. The Temperature, Luminosity, and Spectrum of Kapteyn's Star. Robert F. Wing, Charles A. Dean, and Darrell J. MacConnell. **205**, 186, 30-A2 (1976)
- DEARBORN, D. S. P. $^{12}\text{C}/^{13}\text{C}$ Ratios in Stars Ascending the Giant Branch the First Time. D. S. P. Dearborn, P. P. Eggleton, and D. N. Schramm. **203**, 455, 6-G8 (1976)

- DEETER, J. Analysis of Periodic Optical Variability in the Compact X-Ray Source Hercules X-1/HZ Herculis. *J. Deeter, L. Crosta, D. Gerend, and P. Boynton*. **206**, 861, 55-A1 (1976)
- DEETER, J. E. Orbital Precession in Hercules X-1. *J. E. Deeter and P. E. Boynton*. **210**, L133, 115-B3 (1976)
- DEFOUW, RICHARD J. Dynamical Response of the Interstellar Medium to Explosions at the Galactic Center. *Richard J. Defouw*. **208**, 52, 74-E2 (1976)
- Wave Propagation along a Magnetic Tube. *Richard J. Defouw*. **209**, 266, 90-G2 (1976)
- DEISSLER, ROBERT G. Gravitational Collapse of a Turbulent Vortex with Application to Star Formation. *Robert G. Deissler*. **209**, 190, 90-A4 (1976)
- DE LA NOË, JÉRÔME. Theory of Type IIb Solar Radio Bursts. *Robert A. Smith and Jérôme de la Noë*. **207**, 605, 65-G5 (1976)
- DELSEMMÉ, A. The Production Rate and Possible Origin of O (¹D) in Comet Bennett 1970 II. *A. Delsemme and M. R. Combi*. **209**, L149, 101-G11 (1976)
- DELSEMMÉ, A. H. Production Rate and Origin of H₂O⁺ in Comet Bennett 1970 II. *A. H. Delsemme and M. R. Combi*. **209**, L153, 102-A1 (1976)
- DELVAILLE, J. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Doxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delville, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper*. **203**, L9, 4-C12 (1976)
- DELVAILLE, J. P. Detection of X-Rays from Algol (β Persei). *H. W. Schnopper, J. P. Delville, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Doxsey*. **210**, L75, 111-C1 (1976)
- DEMERS, SERGE. The Reticulum System: An Analog to the Draco Dwarf Galaxy near the Large Magellanic Cloud. *Serge Demers and William E. Kunkel*. **208**, 932, 86-C10 (1976)
- DENNEFELD, M. Supernova Ejecta in the Large Magellanic Cloud. *I. J. Danziger and M. Dennefeld*. **207**, 394, 63-E1 (1976)
- DENNISON, BRIAN. Far-Infrared Spectral Observations of M42 and M17. *Dennis B. Ward, Brian Dennison, George E. Gull, and Martin Harwit*. **205**, L75, 37-B6 (1976)
- DENOYER, L. K. Limits on the Magnetic Field Strength in H I Clouds surrounding the Supernova Remnants HB 21 and W44. *K. C. Turner, L. K. DeNoyer, and J. W. Erkes*. **207**, 59, 58-E9 (1976)
- DE ROUX, JAMES. New Color-Magnitude Diagrams for Four Globular Clusters. *William E. Harris, René Racine, and James de Roux*. **31**, 13, 11-B1 (1976) (Abstr. in **205**, 655, 36-E10)
- DE RUITER, H. R. A BL Lacertae Object near the Spiral Galaxy NGC 6503. *Halton Arp, Jack W. Sulentic, A. G. Willis, and H. R. de Ruiter*. **207**, L13, 62-B1 (1976)
- DESPAIN, KEITH H. Fluorine Power and Helium-Shell Flashes. *John M. Scalo and Keith H. Despain*. **203**, 667, 10-B8 (1976)
- A Criterion for the Maximum Extent of Flash-driven Convection. *Keith H. Despain and John M. Scalo*. **208**, 789, 84-G1 (1976)
- DEUPREE, ROBERT G. Nonlinear Convective Motion in Shallow Convective Envelopes. *Robert G. Deupree*. **205**, 286, 31-B2 (1976)
- A Suggestion for the Alternating Amplitudes of RV Tauri Variables. *Robert G. Deupree and Stephen W. Hodson*. **208**, 426, 79-E10 (1976)
- Effects of Heavy-Element Abundances on the Color-Magnitude Diagrams of Young Clusters in the Galaxy and the Magellanic Clouds. *Gretchen L. H. Harris and Robert G. Deupree*. **209**, 402, 93-G6 (1976)
- DEUTSCHMAN, WILLIAM A. The Galactic Distribution of Interstellar Absorption as Determined from the *Celestscope* Catalog of Ultraviolet Stellar Observations and a New Catalog of UBV, H-Beta Photoelectric Observations. *William A. Deutschman, Robert J. Davis, and Rudolph E. Schild*. **30**, 97, 3-A2 (1976) (Abstr. in **203**, 284, 4-A12)
- DE VAUCOULEURS, G. Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift-Magnitude Relation Derived from Nearby Groups and Sc Galaxies. *G. de Vaucouleurs*. **205**, 13, 28-B3 (1976)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift Magnitude Relation Derived from Nearby Groups and Sc Galaxies: Erratum. *G. de Vaucouleurs*. **208**, 86-E7 (1976) (Orig. paper in **205**, 13, 28-B3)
- Type I Supernovae as Cosmological Clocks. *G. de Vaucouleurs and W. D. Pence*. **209**, 687, 98-C11 (1976)
- Light Curve of Nova V1500 Cygni 1975. *P. J. Young, H. G. Corwin, Jr., J. Bryan, and G. de Vaucouleurs*. **209**, 882, 100-C11 (1976)
- DEWITT, H. E. Statistical Mechanics of Light Elements at High Pressure. IV. A Model Free Energy for the Metallic Phase. *H. E. DeWitt and W. B. Hubbard*. **205**, 295, 31-B11 (1976)
- DE YOUNG, DAVID S. The Dynamical Interaction between Galaxies and Intracluster Gas in Clusters of Galaxies. *Susan M. Lea and David S. De Young*. **210**, 647, 112-C6 (1976)
- DE ZOTTI, G. Cosmological Turbulence Reexamined. *A. M. Anile, L. Danese, G. De Zotti, and S. Motta*. **205**, L59, 37-A6 (1976)
- DICKEL, JOHN R. Radial Velocities and Masses of Galaxies in Groups from 21-Centimeter Line Observations. *Herbert J. Rood and John R. Dickel*. **205**, 346, 33-C12 (1976)
- DICKENS, R. J. Enhanced Abundances of Nitrogen and s-Process Elements in Red Giant Stars in Omega Centauri. *R. J. Dickens and R. A. Bell*. **207**, 506, 64-F14 (1976)
- DICKEY, JOHN. Radio Emission from the X-Ray Source A02620-00. *Frazer N. Owen, Thomas J. Balonek, John Dickey, Yervant Terzian, and S. T. Gottesman*. **203**, L15, 4-D6 (1976)
- DICKINSON, DALE F. The Radio Spectra of Markarian Galaxies. *Gabriel Kojoian, Richard A. Sramek, Dale F. Dickinson, H. Tovmassian, and C. R. Purton*. **203**, 323, 5-D1 (1976)
- Observations of Interstellar Silicon Monoxide. *Dale F. Dickinson, C. A. Gottlieb, Elaine W. Gottlieb, and M. M. Litvak*. **206**, 79, 43-F12 (1976)
- H₂O and 22 GHz Continuum Observations of M17. *Charles J. Lada, Dale F. Dickinson, C. A. Gottlieb, and E. L. Wright*. **207**, 113, 59-C1 (1976)
- The Stellar Velocity of Long-Period Variables. *Mark J. Reid and Dale F. Dickinson*. **209**, 505, 94-G8 (1976)
- Water Emission from Infrared Stars. *Dale F. Dickinson*. **30**, 259, 5-D1 (1976) (Abstr. in **204**, 312, 16-D9)
- DICKMAN, R. L. The Relation between Carbon Monoxide Emission and Visual Extinction in Cloud L134. *K. D. Tucker, R. L. Dickman, P. J. Encrenaz, and M. L. Kutner*. **210**, 679, 112-E13 (1976)
- DICUS, DUANE A. Neutrino Pair Bremsstrahlung Including Neutral Current Effects. *Duane A. Dicus, Edward W. Kolb, David N. Schramm, and David L. Tubbs*. **210**, 481, 109-B3 (1976)
- DIERCKSEN, G. H. F. Identification of Interstellar X-ogen as HCO⁺. *W. P. Kraemer and G. H. F. Diercksen*. **205**, L97, 37-C11 (1976)
- DIETER, N. H. A Very Small Interstellar Neutral Hydrogen Cloud Observed with VLBI Techniques. *N. H. Dieter, W. J. Welch, and J. D. Romney*. **206**, L113, 52-D3 (1976)
- D'INCAN, J. Experimental Oscillator Strengths in the C₂ ($^1[\pi u-X^1\Sigma g^+]$) Phillips Band System. *F. Roux, D. Cerny, and J. D'Incan*. **204**, 940, 26-C1 (1976)
- DINERSTEIN, H. L. Interstellar Molecular Hydrogen Toward Zeta Puppis. *D. C. Morton and H. L. Dinerstein*. **204**, 1, 13-A4 (1976)
- DISMUK, K. T. The C₄ Molecule. *W. R. M. Graham, K. T. Dismuke, and W. Weltner, Jr.*. **204**, 301, 16-C12 (1976)
- DISNEY, M. J. The BL Lacertae Object AP Librae in 1975. *B. A.*

- Peterson, A. W. Rodgers, E. J. Wampler, and M. J. Disney. **207**, L17, 62-B9 (1976)
- The Redshift of the BL Lacertae Object PKS 0548-322. R. A. E. Fosbury and M. J. Disney. **207**, L75, 67-A6 (1976)
- DIXON, THOMAS A. Laboratory Microwave Spectrum and Rest Frequencies of the N_2H^+ Ion. Richard J. Saykally, Thomas A. Dixon, Thomas G. Anderson, Peter G. Szanto, and R. Claude Woods. **205**, L101, 37-D1 (1976)
- DJUTH, F. T. Detection of Nuclear Gamma Rays from Centaurus A. R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes. **210**, 631, 112-B4 (1976)
- DOLAN, JOSEPH F. Optical Polarization of Nova Monocerotis 1975 (=A0620-00). Joseph F. Dolan. **210**, 721, 113-B1 (1976)
- DOPITA, M. A. Atomic Nitrogen as a Probe of Physical Conditions in the Interstellar Medium. M. A. Dopita, D. J. Mason, and W. D. Robb. **207**, 102, 59-B2 (1976)
- DOPITA, MICHAEL A. Optical Emission from Shock Waves. I. Abundances in N49. Michael A. Dopita. **209**, 395, 93-F13 (1976)
- DOSCHEK, G. A. The Solar Spectrum: Wavelengths and Identifications from 160 to 770 Angstroms. W. E. Behring, L. Cohen, U. Feldman, and G. A. Doschek. **203**, 527, 7-E11 (1976)
- Doppler Wavelength Shifts of Transition Zone Lines Measured in Skylab Solar Spectra. G. A. Doschek, U. Feldman, and J. D. Bohlin. **205**, L177, 42-E7 (1976)
- The Quiet Sun Chromospheric Network Observed from Skylab. U. Feldman, G. A. Doschek, and N. P. Patterson. **209**, 270, 90-G6 (1976)
- The Emission-Line Spectrum of a Sunspot in the Far-Ultraviolet. Chung-Chieh Cheng, G. A. Doschek, and U. Feldman. **210**, 836, 114-C7 (1976)
- The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175-1940 Å. G. A. Doschek, U. Feldman, M. E. VanHoosier, and J. -D. F. Bartoe. **31**, 417, 18-E1 (1976) (Abstr. in **206**, 964, 56-A13)
- The Emission-Line Spectrum above the Limb of a Solar Coronal Hole: 1175-1940 Å. U. Feldman, G. A. Doschek, M. E. VanHoosier, and J. D. Purcell. **31**, 445, 18-G1 (1976) (Abstr. in **206**, 965, 56-A14)
- DOTY, J. The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. D. Duxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primi, and J. Richardson. **207**, L95, 67-B12 (1976)
- DOTY, J. P. High-Energy X-Ray Observations of the Transient Source A0535+26 from a Balloon-Borne Telescope. G. R. Ricker, A. Scheepmaker, J. E. Ballantine, J. P. Doty, G. A. Kriss, S. G. Ryckman, and W. H. G. Lewin. **204**, L73, 22-B1 (1976)
- The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballantine, J. P. Doty, P. M. Downey, and W. H. G. Lewin. **205**, L65, 37-A11 (1976)
- DOTY, JOHN. Discovery of X-Ray Bursts from MXB 1728-34. Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li. **210**, L13, 106-B11 (1976)
- DOWNY, P. M. The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballantine, J. P. Doty, P. M. Downey, and W. H. G. Lewin. **205**, L65, 37-A11 (1976)
- DOXSEY, R. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. R. Duxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaille, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper. **203**, L9, 4-C12 (1976)
- Optical Identification of A0620-00. F. Boley, R. Wolfson, H. Bradt, R. Duxsey, G. Jernigan, and W. A. Hiltner. **203**, L13, 4-D2 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Duxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primi, S. Rappaport, and H. Schnopper. **204**, L67, 22-A10 (1976)
- On the Ultrasoft X-Ray Background. A. Levine, S. Rappaport, R. Duxsey, and G. Jernigan. **205**, 226, 30-D10 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Duxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primi, and J. Richardson. **207**, L95, 67-B12 (1976)
- Detection of X-Rays from Algol (β Persei). H. W. Schnopper, J. P. Delvaille, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Duxsey. **210**, L75, 111-C1 (1976)
- DRAKE, J. F. Lyman-Alpha Observations of Comet Kohoutek 1973 XII with Copernicus. J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller. **209**, 302, 91-B10 (1976)
- DRAN, J. C. Heavily Irradiated Grains and Neon Isotope Anomalies in Carbonaceous Chondrites. J. Audouze, J. P. Bibring, J. C. Dran, M. Maurette, and R. M. Walker. **206**, L185, 56-G10 (1976)
- DRESSEL, L. L. Accurate Optical Positions of Bright Galaxies. L. L. Dressel and J. J. Condon. **31**, 187, 14-D1 (1976) (Abstr. in **205**, 342, 46-E10)
- DRESSLER, A. Velocity Dispersions for X-Ray Clusters of Galaxies. S. M. Faber and A. Dressler. **210**, L65, 111-B5 (1976)
- DRIVER, R. D. The Broadening of the Calcium Resonance Line in a High-Temperature Helium Atmosphere. R. D. Driver and J. L. Snider. **208**, 518, 80-E7 (1976)
- DRYER, MURRAY. Sun and Comets as Sources in an External Flow. Max K. Wallis and Murray Dryer. **205**, 895, 40-F1 (1976)
- DUCROS, RENÉ. Spectrum and Origin of X- and Gamma-Ray Diffuse Background. Robert Rocchia, René Ducros, and Bernard Gaffet. **209**, 350, 93-C7 (1976)
- DUFOUR, REGINALD J. Possible Mg II Emission in B Stars Observed from Copernicus. Yoji Kondo, Jerry L. Modisette, Reginald J. Dufour, and Ray S. Whaley. **206**, 163, 44-F4 (1976)
- DUNLAP, J. R. Observations of Supernovae: 1975a in NGC 2207 and 1975b in the Perseus Cluster. Robert P. Kirshner, H. C. Arp, and J. R. Dunlap. **207**, 44, 58-D9 (1976)
- DUNN, K. A. A Class of Bianchi Type VI Cosmological Model with Electromagnetic Field. K. A. Dunn and B. O. J. Tupper. **204**, 322, 18-A11 (1976)
- DUPREE, A. K. Plasma Diagnostic Techniques in the Ultraviolet: The C III Density-Sensitive Lines in the Sun. A. K. Dupree, P. V. Foukal, and Carole Jordan. **209**, 621, 96-B9 (1976)
- DURISEN, RICHARD H. On the White Dwarf HZ 43 as an Extreme-Ultraviolet Source. Richard H. Durisen, M. P. Savedoff, and H. M. Van Horn. **206**, L149, 56-E4 (1976)
- DURNEY, B. R. On the Constancy Along Cylinders of the Angular Velocity in the Solar Convection Zone. B. R. Durney. **204**, 589, 20-G11 (1976)
- DUST, W. Flare from the Perseus Region in Hard X-Rays. F. Fuligni, D. Brini, W. Dusi, and F. Frontera. **208**, L111, 86-F10 (1976)
- DUTHIE, J. G. Eclipses of U Geminorum. S. Arnold, R. A. Berg, and J. G. Duthie. **206**, 790, 54-B10 (1976)
- DUVAL, JAMES E. Absolute Flux Calibration for the Mg II Observations near 2800 Angstroms. Yoji Kondo, James E. Duval, Jerry L. Modisette, and T. H. Morgan. **210**, 713, 113-A6 (1976)
- DWEK, ELIAHU. Gamma-Ray Emission and Nucleosynthesis of Lithium by Young Pulsars. Donald D. Clayton and Eliahu Dwek. **206**, L59, 47-E7 (1976)

- EACHUS, LOLA J. Optical Observations of the Recurrent Nova Associated with A0620-00: 1917-1975. *Lola J. Eachus, Edward L. Wright, and William Liller*. **203**, L17, 4-D8 (1976)
- EARDLEY, D. M. A Two-Temperature Accretion Disk Model for Cygnus X-1: Structure and Spectrum. *S. L. Shapiro, A. P. Lightman, and D. M. Eardley*. **204**, 187, 15-B1 (1976)
- EARL, JAMES A. The Effect of Adiabatic Focusing upon Charged-Particle Propagation in Random Magnetic Fields. *James A. Earl*. **205**, 900, 40-F6 (1976)
- Non-diffusive Propagation of Cosmic Rays in the Solar System and in Extragalactic Radio Sources. *James A. Earl*. **206**, 301, 46-B9 (1976)
- EGGEN, O. J. Stellar Population Samples at the Galactic Poles. IV. Luminosity Function for the M-Type Dwarfs at the South Pole. *O. J. Eggen*. **204**, 101, 14-B4 (1976)
- Stellar Population Samples at the Galactic Poles. III. *UBVR* Observations of Proper Motion Stars near the South Pole and the Luminosity Laws for the Halo and Old Disk Populations. *O. J. Eggen*. **30**, 351, 6-F1 (1976) (Abstr. in **204**, 313, 16-D10)
- EGGLETON, P. P. $^{12}\text{C}/^{13}\text{C}$ Ratios in Stars Ascending the Giant Branch the First Time. *D. S. P. Dearborn, P. P. Eggleton, and D. N. Schramm*. **203**, 455, 6-G8 (1976)
- EHLERS, JURGEN. Comments on Gravitational Radiation Damping and Energy Loss in Binary Systems. *Jürgen Ehlers, Arnold Rosenblum, Joshua N. Goldberg, and Peter Havas*. **208**, L77, 82-C2 (1976)
- EICHLER, DAVID. The Electromagnetic Background: Limitations on Models of Unseen Matter. *David Eichler and Alan Solinger*. **203**, 1, 1-A4 (1976)
- On the Extragalactic Interpretation of High-Velocity H I Clouds. *David Eichler*. **208**, 694, 83-F7 (1976)
- A Possible Manifestation of Unseen Matter. *David Eichler*. **208**, L5, 77-A5 (1976)
- EILEK, J. A. Profiles of the [O III] Nebular Lines in Two Bright Seyfert Galaxies. *J. W. Glaspey, J. A. Eilek, G. G. Fahlgren, and J. R. Auman*. **203**, 335, 5-D13 (1976)
- EILEK, JEAN A. Cloud Acceleration by Cosmic Rays in the Vicinity of Compact Luminous Objects. *Jean A. Eilek and Lawrence J. Caroff*. **208**, 887, 85-G2 (1976)
- EKSTROM, PHILIP A. Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom*. **203**, L43, 4-F4 (1976)
- Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths: Erratum. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom*. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L43, 4-F4)
- ELANDER, N. Predissociation Effects in the A, B, and C States of CH and the Interstellar Formation Rate of CH Inverse Predissociation. *J. Brzozowski, P. Bunker, N. Elander, and P. Erman*. **207**, 414, 63-F8 (1976)
- ELIAS, J. Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner*. **207**, 78, 58-G1 (1976)
- ELIAS, J. H. Far-Infrared Observations of IRC +10216. *M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook*. **208**, 396, 79-C1 (1976)
- One-Millimeter Continuum Emission Studies of Four Molecular Clouds. *W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer*. **209**, 94, 89-A3 (1976)
- ELITZUR, MOSHE. Inversion of the OH 1720 MHz Line. *Moshe Elitzur*. **203**, 124, 2-C9 (1976)
- OH-IR Stars. II. A model for the 1612 MHz Masers. *Moshe Elitzur, Peter Goldreich, and Nick Scoville*. **205**, 384, 33-F13 (1976)
- ELLDÉR, J. Radio Observations of Interstellar CH. I. *O. E. H. Rydbeck, E. Kollberg, A. Hjalmarson, A. Sume, J. Elldér, and W. M. Irvine*. **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- ELLIOT, J. L. The Occultation of B Scorpii by Jupiter. VII. The Angular Diameters of B Scorpii A1 and A2. *J. L. Elliot, K. Rages, and J. Veverka*. **207**, 994, 71-C1 (1976)
- ELMEGREEN, BRUCE G. The Ionization of A Low-Density Intercloud Medium by a Single O Star. *Bruce G. Elmegreen*. **32**, 147, 23-G1 (1976) (Abstr. in **208**, 273, 76-G11)
- ELMEGREEN, BRUCE. The Ionization of Cloud and Intercloud Hydrogen by O and B stars. *Bruce Elmegreen*. **205**, 405, 34-A8 (1976)
- ELMEGREEN, BRUCE G. Velocity Dispersions in Galaxies. V. The Nuclei of M31 and M32. *Donald C. Morton and Bruce G. Elmegreen*. **205**, 63, 28-E13 (1976)
- ENCRENANZ, P. J. The Abundance Ratio $^{17}\text{O}/^{18}\text{O}$ in Dense Interstellar Clouds. *P. G. Wannier, R. Lucas, R. A. Linke, P. J. Encrenanz, A. A. Penzias, and R. W. Wilson*. **205**, L169, 42-E1 (1976)
- The Relation between Carbon Monoxide Emission and Visual Extinction in Cloud L134. *K. D. Tucker, R. L. Dickman, P. J. Encrenanz, and M. L. Kutner*. **210**, 679, 112-E13 (1976)
- ENDAL, A. S. The Evolution of Rotating Stars. I. Method and Exploratory Calculations for a 7 M_{\odot} Star. *A. S. Endal and S. Sofia*. **210**, 184, 105-A10 (1976)
- EOLL, JOHN G. Comments on the Diffusion Model of Turbulent Mixing. *Lawrence D. Cloutman and John G. Eoll*. **206**, 548, 50-B10 (1976)
- EPES, H. W. The Spectrum of NHC 7027. *J. B. Kaler, L. H. Aller, S. J. Czyzak, and H. W. Epps*. **31**, 163, 14-A2 (1976) (Abstr. in **206**, 343, 46-E11)
- EPES, HARLAND W. Electron Densities in Gaseous Nebulae. *Lawrence H. Aller and Harland W. Epps*. **204**, 445, 19-C9 (1976)
- Electron Density Measurements in NGC 6720. *Lawrence H. Aller, Harland W. Epps, and S. J. Czyzak*. **205**, 798, 39-D9 (1976)
- EPSTEIN, A. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. D. Doxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaile, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper*. **203**, L9, 4-C12 (1976)
- Detection of X-Rays from Algol (β Persei). *H. W. Schnopper, J. P. Delvaile, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Doxsey*. **210**, L75, 111-C1 (1976)
- EPSTEIN, RICHARD I. Magnetohydrodynamic Phenomena in Collapsing Stellar Cores. *David L. Meier, Richard I. Epstein, W. David Arnett, and David N. Schramm*. **204**, 869, 25-D10 (1976)
- Synthesis of the Light Elements in Supernovae (Abstract of 1976 May Suppl.). *Richard I. Epstein, W. David Arnett, and David N. Schramm*. **205**, 657, 36-E12 (1976)
- Synthesis of the Light Elements in Supernovae. *Richard I. Epstein, W. David Arnett, and David N. Schramm*. **31**, 111, 12-F1 (1976) (Abstr. in **205**, 657, 36-E12)
- ERICKSON, EDWIN F. Combined Ground and Aircraft Based 1-4 Micron Spectra of LkHa 101. *Rodger I. Thompson, Edwin F. Erickson, Fred C. Witteborn, and D. W. Strecker*. **210**, L31, 106-D1 (1976)
- ERICKSON, R. A. Search for Pulsed Gamma Rays of $\sim 10^{13}$ eV from NP 0532. *R. A. Erickson, R. K. Finkle, and R. C. Lamb*. **210**, 539, 109-F7 (1976)
- ERICKSON, W. C. Meter-Wavelength VLBI. III. Pulsars. *N. R. Vandenbergh, T. A. Clark, W. C. Erickson, G. M. Resch, and J. J. Broderick*. **207**, 937, 70-E12 (1976)
- ERKES, J. W. Limits on the Magnetic Field Strength in H I Clouds surrounding the Supernova Remnants HB 21 and W44. *K. C. Turner, L. K. DeNoyer, and J. W. Erkes*. **207**, 59, 58-E9 (1976)
- ERMAN, P. Predissociation Effects in the A, B, and C States of CH and the Interstellar Formation Rate of CH Inverse Predissociation. *J. Brzozowski, P. Bunker, N. Elander, and*

- P. Erman. **207**, 414, 63-F8 (1976)
- ESTEVA, J. M. Revised Classification of Mg II Levels between 59 and 63 eV. G. Mehlman, A. W. Weiss, and J. M. Esteva. **209**, 640, 96-D1 (1976)
- EVANS, D. S. UV Ceti Stars: Statistical Analysis of Observational Data. C. H. Lacy, T. J. Moffett, and D. S. Evans. **30**, 85, 2-C1 (1976) (Abstr. in **202**, 844, 99-G14)
- EVANS, J. C. Applications of Fourier Analysis to Broadening of Stellar Line Profiles. III. Solar Microturbulence and Macroturbulence from Iron Lines. Myron A. Smith, L. Testerman, and J. C. Evans. **207**, 308, 61-C6 (1976)
- EVANS, NANCY REMAGE. Wesselink Radii for Classical Cepheids. *Nancy Remage Evans*. **209**, 135, 89-D5 (1976)
- Light and Radial Velocity Observations of Classical Cepheids. *Nancy Remage Evans*. **32**, 399, 29-D1 (1976) (Abstr. in **209**, 648, 96-D9)
- EVANS, N. J., II. H₂CO Emission at 2-millimeters in Dark Clouds. N. J. Evans II and M. L. Kutner. **204**, L131, 27-B10 (1976)
- Accurate Positions of OH Emission Sources. N. J. Evans II, Richard M. Crutcher, and W. J. Wilson. **206**, 440, 49-A10 (1976)
- Infrared Observations of Monoceros R2. S. Beckwith, N. J. Evans II, E. E. Becklin, and G. Neugebauer. **208**, 390, 79-B9 (1976)
- EVANS, NEAL J., II. A Dense Molecular Cloud in the OMC-1/OMC-2 Region. Marc L. Kutner, Neal J. Evans II, and Kenneth D. Tucker. **209**, 452, 94-D1 (1976)
- EVANS, STEVEN W. Metallicity, Pulsation, and the Nature of 32 Virginis. Donald W. Kurtz, Michel Breger, Steven W. Evans, and William H. Sandmann. **207**, 181, 60-A4 (1976)
- EVANS, W. D. The Discovery of X-Ray Bursts from a Region in the Constellation Norma. R. D. Belian, J. P. Conner, and W. D. Evans. **206**, L135, 56-D3 (1976)
- A Preliminary Sky Map of Brief X-Ray Transients. R. D. Belian, J. P. Conner, and W. D. Evans. **207**, L33, 62-D1 (1976)
- Observations of Intense Cosmic X-Ray Bursts. W. D. Evans, R. D. Belian, and J. P. Conner. **207**, L91, 67-B8 (1976)
- EVATAR, AHARON. Jovian Sodium Plasma. Aharon Eviatar, Yuri Mekler, and Ferdinand V. Coroniti. **205**, 622, 36-C6 (1976)
- Detection of Ionized Sulfur in the Jovian Magnetosphere. Irena Kupo, Yuri Mekler, and Aharon Eviatar. **205**, L51, 32-E3 (1976)
- FABBIANO, G. The Long-Term Intensity Behavior of Centaurus X-3. E. J. Schreier, K. Swartz, R. Giacconi, G. Fabbiano, and J. Morin. **204**, 539, 20-D2 (1976)
- FABER, S. M. H I in Early-Type Galaxies. II. Mass Loss and Galactic Winds. S. M. Faber and J. S. Gallagher. **204**, 365, 18-D12 (1976)
- Velocity Dispersions and Mass-to-Light Ratios for Elliptical Galaxies. S. M. Faber and Robert E. Jackson. **204**, 668, 28-C13 (1976)
- H I in Early-Type Galaxies. III. Observations of S0 Galaxies. Bruce Balick, S. M. Faber, and J. S. Gallagher. **209**, 710, 98-E6 (1976)
- Velocity Dispersions for X-Ray Clusters of Galaxies. S. M. Faber and A. Dressler. **210**, L65, 111-B5 (1976)
- FACKERELL, E. D. The Dynamic Instability of Isothermal Relativistic Star Clusters. K. G. Soffern and E. D. Fackerell. **203**, 477, 7-B5 (1976)
- FAHLMAN, G. G. Profiles of the [O III] Nebular Lines in Two Bright Seyfert Galaxies. J. W. Glaspey, J. A. Eilek, G. G. Fahlman, and J. R. Auman. **203**, 335, 5-D13 (1976)
- Shot Noise in 3C 273. G. G. Fahlman and Tad J. Ulrych. **209**, 663, 98-B1 (1976)
- FAIRCHILD, E. T. Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXI. Absolute Energy Distribution of Stars in the Ultraviolet. R. C. Bless, A. D. Code, and E. T. Fairchild. **203**, 410, 6-C10 (1976)
- FALK, SYDNEY W. Some Comparisons of Theoretical Supernova Light Curves with Supernova 1969I (Type II) in NGC 1058. W. David Arnett and Sydney W. Falk. **210**, 733, 113-B13 (1976)
- FALL, S. MICHAEL. The Growth of Correlations in an Expanding Universe and the Clustering of Galaxies. S. Michael Fall and William C. Saslaw. **204**, 631, 23-A4 (1976)
- On the Use of Correlation Functions in Finding Physical Associations of Galaxies. S. Michael Fall, Margaret J. Geller, Bernard J. T. Jones, and Simon D. M. White. **205**, L121, 42-B1 (1976)
- FAN, C. Y. Anomaly in the Quiet-Time Helium Spectrum at 1 MeV per Nucleon. G. Gloeckler, D. Hovestadt, Klecker B., O. Vollmer, and C. Y. Fan. **204**, 920, 26-A6 (1976)
- Ion and Electron Pulses Observed in the Magnetotail and Rapid Annihilation of Magnetic Field Lines. C. Y. Fan, G. Gloeckler, and D. Hovestadt. **209**, 259, 90-F8 (1976)
- A Direct Measurement of the Charge States of Energetic Iron Emitted by the Sun. G. Gloeckler, R. K. Sciambi, C. Y. Fan, and D. Hovestadt. **209**, L93, 97-A9 (1976)
- Time Dispersion of Energetic Solar Particles: Unexpected Velocity and Species Dependence. J. J. O'Gallagher, D. Hovestadt, B. Klecker, G. Gloeckler, and C. Y. Fan. **209**, L97, 97-A13 (1976)
- FARAGGINANA, ROSANNA. The Ultraviolet Spectrum of Alpha Lyrae. Rosanna Faragginana, Margherita Hack, and David S. Leckrone. **32**, 501, 31-B1 (1976) (Abstr. in **209**, 648, 96-D9)
- FAY, THEODORE D., JR. Carbon Star Photometry: CO and 3.2 Micron Bands. Theodore D. Fay, Jr. and Stephen T. Ridgway. **203**, 600, 9-D6 (1976)
- FAZIO, G. G. A Far-Infrared Map of the Ophiuchus Dark Cloud Region. G. G. Fazio, E. L. Wright, M. Zeilik II, and F. J. Low. **206**, L165, 56-F5 (1976)
- Prediction of the Diffuse Far-Infrared Flux from the Galactic Plane. G. G. Fazio and F. W. Stecker. **207**, L49, 62-E2 (1976)
- Far-Infrared Observations of M20 (NGC 6514). E. L. Wright, G. G. Fazio, and F. J. Low. **208**, L87, 82-C12 (1976)
- The Effective Temperature of Uranus. G. G. Fazio, W. A. Traub, E. L. Wright, F. J. Low, and L. Trafton. **209**, 633, 96-C7 (1976)
- FEHSENFELD, F. C. Ion Reactions with Atomic Oxygen and Atomic Nitrogen of Astrophysical Importance. F. C. Fehsenfeld. **209**, 638, 96-C12 (1976)
- FEIBELMAN, WALTER A. The Astrometric Binary μ Cassiopeiae: Photographically Almost Resolved. Walter A. Feibelman. **209**, 497, 94-G1 (1976)
- FELDMAN, P. D. Carbon Production in Comet West 1975n. P. D. Feldman and W. H. Brune. **209**, L45, 92-D2 (1976)
- FELDMAN, U. The Solar Spectrum: Wavelengths and Identifications from 160 to 770 Angstroms. W. E. Behring, L. Cohen, U. Feldman, and G. A. Doschek. **203**, 527, 7-E11 (1976)
- Doppler Wavelength Shifts of Transition Zone Lines Measured in Skylab Solar Spectra. G. A. Doschek, U. Feldman, and J. D. Bohlin. **205**, L177, 42-E7 (1976)
- The Quiet Sun Chromospheric Network Observed from Skylab. U. Feldman, G. A. Doschek, and N. P. Patterson. **209**, 270, 90-G6 (1976)
- The Emission-Line Spectrum of a Sunspot in the Far-Ultraviolet. Chung-Chieh Cheng, G. A. Doschek, and U. Feldman. **210**, 836, 114-C7 (1976)
- The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175-1940 Å. G. A. Doschek, U. Feldman, M. E. VanHoosier, and J. -D. F. Bartoe. **31**, 417, 18-E1 (1976) (Abstr. in **206**, 964, 56-A13)
- The Emission-Line Spectrum above the Limb of a Solar Coronal Hole: 1175-1940 Å. U. Feldman, G. A. Doschek, M. E. VanHoosier, and J. D. Purcell. **31**, 445, 18-G1 (1976) (Abstr. in **206**, 965, 56-A14)
- FELDMAN, W. C. Solar Cycle Evolution of High-Speed Solar Wind Streams. S. J. Bame, J. R. Asbridge, W. C. Feldman,

- and J. T. Gosling. **207**, 977, 71-A11 (1976)
- FELTEN, JAMES E. On Schmidt's V_m Estimator and Other Estimators of Luminosity Functions. *James E. Felten*. **207**, 700, 68-B5 (1976)
- FENNELLY, A. J. Effects of a Rotation of the Universe on the Number Counts of Radio Sources: Gödel's Universe. *A. J. Fennelly*. **207**, 693, 68-A12 (1976)
- FERGUSON, DALE C. The Generalized Single-Vector Polarization Model for Pulsars. I. Theory. *Dale C. Ferguson*. **205**, 247, 30-F4 (1976)
- The Generalized Single-Vector Polarization Model for Pulsars. II. Fits to Published Observations. *Dale C. Ferguson*. **209**, 606, 96-A5 (1976)
- FESTOU, M. Lyman-Alpha Observations of Comet Kohoutek 1973 XII with Copernicus. *J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller*. **209**, 302, 91-B10 (1976)
- FICHEL, C. E. Significance of Medium-Energy Gamma-Ray Astronomy in the Study of Cosmic Rays. *C. E. Fichtel, D. A. Kniffen, D. J. Thompson, G. F. Bignami, and C. Y. Cheung*. **208**, 211, 76-C2 (1976)
- A Search of the SAS-2 Data for Pulsed Gamma-Ray Emission from Radio Pulsars. *H. Ögelman, C. E. Fichtel, D. A. Kniffen, and D. J. Thompson*. **209**, 584, 95-F9 (1976)
- FICKLE, R. K. Search for Pulsed Gamma Rays of $\sim 10^{13}$ eV from NP 0532. *R. A. Erickson, R. K. Fickle, and R. C. Lamb*. **210**, 539, 109-F7 (1976)
- FIELD, GEORGE B. Consequences of a New Hot Component of the Interstellar Medium. *Paul R. Shapiro and George B. Field*. **205**, 762, 39-B1 (1976)
- FIÉNI, C. Abundances of $Z > 52$ Nuclei in Galactic Cosmic Rays: Long-Term Averages Based on Studies of Pallasites. *O. Otgonsuren, V. P. Perelygin, S. G. Stetsenko, N. N. Gavrilova, C. Fiéni, and P. Pellat*. **210**, 258, 105-G1 (1976)
- FILLIUS, W. Cosmic-Ray Gradients from Pioneer-10 and Pioneer-11. *W. I. Axford, W. Fillius, L. J. Gleeson, and W.-H. Ip*. **210**, 603, 110-D9 (1976)
- FINK, UWE. A Lower Limit on the Surface $^{12}\text{C}/^{13}\text{C}$ Ratio in Alpha Orionis. *T. N. Gautier III, Rodger I. Thompson, Uwe Fink, and Harold P. Larson*. **205**, 841, 40-A10 (1976)
- The Infrared Emission of Upsilon Sagittarii, 89 Herculis, and R Coronae Borealis. *Richard Treffers, Neville J. Woolf, Uwe Fink, and Harold P. Larson*. **207**, 680, 66-E10 (1976)
- Infrared Spectra of the Satellites of Saturn: Identification of Water Ice on Iapetus, Rhea, Dione, and Tethys. *Uwe Fink, Harold P. Larson, T. N. Gautier III, and R. R. Treffers*. **207**, L63, 62-F1 (1976)
- Detection of Molecular Hydrogen Quadrupole Emission in the Orion Nebula. *T. N. Gautier III, Uwe Fink, Richard R. Treffers, and Harold P. Larson*. **207**, L129, 67-E3 (1976)
- The Spectrum of the Planetary Nebulae NGC 7027 from 0.9 to 2.7 Microns. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III*. **209**, 793, 99-D3 (1976)
- The 1.4-2.7 Micron Spectrum of the Point Source at the Galactic Center. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III*. **209**, L115, 101-E1 (1976)
- FIREMAN, E. L. Solar-Wind Tritium Limit and the Mixing Rate of the Solar Atmosphere. *E. L. Fireman*. **205**, 268, 30-G11 (1976)
- FISHBONE, LESLIE G. Relativistic Fluid Disks in Orbit around Kerr Black Holes. *Leslie G. Fishbone and Vincent Moncrief*. **207**, 962, 70-G10 (1976)
- FISHER, A. J. The Isotopic Composition of Cosmic Rays with $5 \leq Z \leq 26$. *A. J. Fisher, F. A. Hagen, R. C. Maehl, J. F. Ormes, and J. F. Arens*. **205**, 938, 41-B3 (1976)
- FISHER, RICHARD R. Magnetic Field Reconnection in the Flare of 18:28 UT 1975 August 10. *Richard C. Canfield and Richard R. Fisher*. **210**, L149, 115-C4 (1976)
- FISHER, W. A. The Binary Frequency of IC 4665. *David Crampton, Graham Hill, and W. A. Fisher*. **204**, 502, 20-A1 (1976)
- FISK, L. A. Solar Modulation and a Galactic Origin for the Anomalous Component Observed in Low-Energy Cosmic Rays. *L. A. Fisk*. **206**, 333, 46-E1 (1976)
- FITCH, W. S. The Three Radial Modes and Evolutionary State of AC Andromedae. *W. S. Fitch and B. Szeidl*. **203**, 616, 9-E8 (1976)
- FITZGERALD, M. P. Surface Brightness Profiles of Dark Nebulae: The Thumbprint Nebula in Chamaeleon. *M. P. Fitzgerald, T. C. Stephens, and A. N. Witt*. **208**, 709, 83-G9 (1976)
- FIX, JOHN D. C γ as a Significant Opacity Source in Ba II Stars. *John D. Fix*. **203**, 463, 7-A2 (1976)
- Spectrophotometry of R Coronae Borealis during the Minimum of 1974. *Robert S. Patterson, John D. Fix, and John S. Neff*. **204**, 838, 25-B7 (1976)
- Spectrophotometry of the Flare Star BY Draconis. *John D. Fix and Steven R. Spangler*. **205**, L163, 42-D9 (1976)
- A Search for Variable 430 MHz Continuum Emission from Red Giant Stars. *John D. Fix and Steven R. Spangler*. **209**, 503, 94-G6 (1976)
- Spectrophotometry of the Algol-Type Binaries U Cephei, U Sagittae, and SX Cassiopeiae. *Craig G. Rhombs and John D. Fix*. **209**, 821, 99-F4 (1976)
- FLANNERY, BRIAN. Circumstellar Matter in the Binary V Puppis. *Donald G. York, Brian Flannery, and John Bahcall*. **210**, 143, 104-E11 (1976)
- FLANNERY, BRIAN P. A Cyclic Thermal Instability in Contact Binary Stars. *Brian P. Flannery*. **205**, 217, 30-D1 (1976)
- FLASAR, F. MICHAEL. A Spinal Model of Cygnus A. *F. Michael Flasar and Philip Morrison*. **204**, 352, 18-C13 (1976)
- FLEWELLING, R. F. The Scattering of Cosmic Rays by Magnetic Bubbles. *R. F. Flewelling and F. V. Coroniti*. **205**, L135, 42-B13 (1976)
- FLORENTIN-NIELSEN, RALPH. Cosmological Evidence against Time Variation of the Fundamental Atomic Constants. *William A. Baum and Ralph Florentin-Nielsen*. **209**, 319, 93-A3 (1976)
- FLOWERS, ELLIOTT. Neutrino Pair Emission from Finite-Temperature Neutron Superfluid and the Cooling of Young Neutron Stars. *Elliott Flowers, Malvin Ruderman, and Peter Sutherland*. **205**, 541, 35-D8 (1976)
- Transport Properties of Dense Matter. *Elliott Flowers and Naoki Itoh*. **206**, 281, 45-C4 (1976)
- FLOWERS, ELLIOTT G. Neutrino-Neutrino Scattering and Supernovae. *Elliott G. Flowers and Peter G. Sutherland*. **208**, L19, 77-B7 (1976)
- FONTAINE, G. Convective White-Dwarf Envelope Model Grids for H-, He-, and C-rich Compositions. *G. Fontaine and H. M. Van Horn*. **31**, 467, 19-B1 (1976) (Abstr. in **206**, 965, 56-A14)
- FORD, HOLLAND C. Planetary Nebulae in Local Group Galaxies. III. Radial Velocity Observations of H II Regions in the M32 Field. *Holland C. Ford and David C. Jenner*. **208**, 683, 83-E10 (1976)
- FORD, W. KENT, JR. Motions of the Stars and the Excited Gas in the Barred Spiral Galaxy NGC 3351. *Charles J. Peterson, Vera C. Rubin, W. Kent Ford, Jr., and Norbert Thonnard*. **208**, 662, 83-C3 (1976)
- FORMAN, W. Uhuru Observations of the Galactic Plane in 1970, 1971, and 1972. *W. Forman, C. Jones, and H. Tananbaum*. **206**, L29, 47-C3 (1976)
- Uhuru Observations of a Transient X-Ray Source Associated with the Globular Cluster NGC 6440. *W. Forman, C. Jones, and H. Tananbaum*. **207**, L25, 62-C6 (1976)
- Uhuru Observations of an X-Ray Burst at High Galactic Latitude Centered on the X-Ray Globular Cluster NGC 1851. *W. Forman and C. Jones*. **207**, L177, 72-C11 (1976)
- Survey of Intensity Variability of Strong Galactic X-Ray Sources from Uhuru. *W. Forman, C. Jones, and H. Tananbaum*. **208**, 849, 85-D5 (1976)
- Uhuru Observations of 4U 1608-52: The "Steady" X-Ray Source Associated with the X-Ray Burst Source Norma. *H. Tananbaum, Lola J. Chaisson, W. Forman, C. Jones, and*

- T. A. Matilsky. **209**, L125, 101-E13 (1976)
- Uhuru Observations of Hercules X-1 during the Low State of the 35-Day Cycle. C. Jones and W. Forman. **209**, L131, 101-F6 (1976)
- Uhuru and Ariel V Observations of 3U 1630-47: A Recurrent Transient X-Ray Source. C. Jones, W. Forman, H. Tananbaum, and M. J. L. Turner. **210**, L9, 106-B8 (1976)
- FORREST, W. J. 16-25 Micron Spectroscopy of the Trapezium and BN-KL Source in Orion. W. J. Forrest and B. T. Soifer. **208**, L129, 87-A1 (1976)
- 16-40 Micron Spectroscopy of the Trapezium and the Kleinmann-Low Nebula in Orion. W. J. Forrest, J. R. Houck, and R. A. Reed. **208**, L133, 87-A5 (1976)
- FORT, D. N. The Brightness Distribution of 3C 84. D. N. Fort. **207**, L155, 72-B6 (1976)
- FOSBURY, R. A. E. The Far Side of the Crab Nebula: Electronographic and Spectroscopic Observations. S. Wyckoff, P. A. Wehinger, R. A. E. Fosbury, and D. McMullan. **206**, 254, 45-E12 (1976)
- The Redshift of the BL Lacertae Object PKS 0548-322. R. A. E. Fosbury and M. J. Disney. **207**, L75, 67-A6 (1976)
- FOUKAL, P. V. Extreme-Ultraviolet Transients Observed at the Solar Pole. G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza. **203**, 528, 7-F5 (1976)
- Plasma Diagnostic Techniques in the Ultraviolet: The C III Density-Sensitive Lines in the Sun. A. K. Dupree, P. V. Foukal, and Carole Jordan. **209**, 621, 96-B9 (1976)
- FOUKAL, PETER. Spectroscopic Evidence for a Higher Rotation Rate of Magnetized Plasma at the Solar Photosphere. Peter Foukal. **203**, L145, 11-F11 (1976)
- FOUKAL, PETER V. The Pressure and Energy Balance of the Cool Corona Over Sunspots. Peter V. Foukal. **210**, 575, 110-B1 (1976)
- FOWLER, L. A. Further Observations of the Binary Pulsar PSR 1913+16. J. H. Taylor, R. A. Hulse, L. A. Fowler, G. E. Gullahorn, and J. M. Rankin. **206**, L53, 47-E1 (1976)
- FOWLER, WILLIAM A. Solar Models of Low Neutrino Counting Rate: Energy Transport by Processes Other than Radiative Transfer. Michael J. Newman and William A. Fowler. **207**, 601, 65-G1 (1976)
- FRANKENTHAL, SHIMSHON. Shock Disturbances in a Thermally Conducting Solar Wind. Philip Rosenau and Shimshon Frankenthal. **208**, 633, 81-G2 (1976)
- FREEMAN, JAY. Observations of Interstellar Helium with a Gas Absorption Cell: Limits on the Bulk Velocity of the Interstellar Medium. Jay Freeman, Francesco Paresce, Stuart Bowyer, and Michael Lampton. **208**, 747, 84-C7 (1976)
- FREEMAN, K. C. The Structure and Mass Function of the Globular Cluster M3. G. S. Da Costa and K. C. Freeman. **206**, 128, 44-C9 (1976)
- FRIEDMAN, H. Discovery of X-Ray Pulsations in SMC X-1. R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman. **206**, L25, 47-B13 (1976)
- X-Ray Evidence for the Supernova Origin of the North Polar Spur. R. G. Cruddace, H. Friedman, G. Fritz, and S. Shulman. **207**, 888, 70-B6 (1976)
- Soft X-Rays from Hercules X-1 During the "Off" State. G. Fritz, S. Naranan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder. **207**, L29, 62-C11 (1976)
- Soft X-Ray Emission in Eridanus: An Old Supernova Remnant? S. Naranan, S. Shulman, H. Friedman, and G. Fritz. **208**, 718, 84-A5 (1976)
- FRITTS, M. J. Thermonuclear Reaction Rates Derived from Thick-Target Yields. N. A. Roughton, M. J. Fritts, R. J. Peterson, C. S. Zaidins, and C. J. Hansen. **205**, 302, 31-C4 (1976)
- FRTZ, G. Discovery of X-Ray Pulsations in SMC X-1. R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman. **206**, L25, 47-B13 (1976)
- X-Ray Evidence for the Supernova Origin of the North Polar Spur. R. G. Cruddace, H. Friedman, G. Fritz, and S. Shulman. **207**, 888, 70-B6 (1976)
- Soft X-Rays from Hercules X-1 During the "Off" State. G. Fritz, S. Naranan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder. **207**, L29, 62-C11 (1976)
- Soft X-Ray Emission in Eridanus: An Old Supernova Remnant? S. Naranan, S. Shulman, H. Friedman, and G. Fritz. **208**, 718, 84-A5 (1976)
- FROGEL, JAY A. The 10 Micron Silicate Feature in Southern H II Regions. S. Persson, Jay A. Frogel, and Marc Aaronson. **208**, 753, 84-C13 (1976)
- FRONTERA, F. Flare from the Perseus Region in Hard X-Rays. F. Fuligni, D. Brini, W. Dusi, and F. Frontera. **208**, L111, 86-F10 (1976)
- FUCHS, B. The Structure of the Galactic Disk and Its Implications for Gamma-Ray Astronomy. B. Fuchs, R. Schlickeiser, and K. O. Thielheim. **206**, 589, 50-F1 (1976)
- FULIGNI, F. Flare from the Perseus Region in Hard X-Rays. F. Fuligni, D. Brini, W. Dusi, and F. Frontera. **208**, L111, 86-F10 (1976)
- FÜRST, E. Cygnus A at 8.5 Millimeter Wavelength. O. Hachenberg, E. Fürst, W. Harth, P. Steffen, W. Wilson, and W. Hirth. **206**, L19, 47-B6 (1976)
- GAFFET, BERNARD. Spectrum and Origin of X- and Gamma-Ray Diffuse Background. Robert Rocchia, René Ducros, and Bernard Gaffet. **209**, 350, 93-C7 (1976)
- GALLAGHER, J. S. High-Dispersion Observations of Emission Lines in the Post-Nova HR Delphini. J. S. Gallagher and Christopher M. Anderson. **203**, 625, 9-F4 (1976)
- H I in Early-Type Galaxies. II. Mass Loss and Galactic Winds. S. M. Faber and J. S. Gallagher. **204**, 365, 18-D12 (1976)
- The Early Infrared Development of Nova Cygni 1975. J. S. Gallagher and E. P. Ney. **204**, L35, 17-C7 (1976)
- A Single-Star Interpretation of Nova Cygni 1975. S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. A. Van Horn. **208**, L23, 77-B10 (1976)
- Surface Photometry of the Spiral Galaxy IC 2233 and the Existence of Massive Halos. J. S. Gallagher and H. S. Hudson. **209**, 389, 93-F8 (1976)
- H I in Early-Type Galaxies. III. Observations of S0 Galaxies. Bruce Balick, S. M. Faber, and J. S. Gallagher. **209**, 710, 98-E6 (1976)
- GARMIRE, G. P. X-Ray Spectra of the Puppis A and the Vela Supernova Remnants. W. E. Moore and G. P. Garmire. **206**, 247, 45-E5 (1976)
- Soft X-Rays from the Large Magellanic Cloud: Implications on the Origin of the Diffuse X-Ray Background. K. S. Long, P. C. Agrawal, and G. P. Garmire. **206**, 411, 48-F7 (1976)
- GASCOIGNE, S. C. B. The Age and Chemical Composition of the LMC Cluster NGC 2209. S. C. B. Gascoigne, John Norris, M. S. Bessell, A. R. Hyland, and N. Visvanathan. **209**, L25, 92-B11 (1976)
- GATEWOOD, GEORGE. The Positions and Proper Motions of HZ Herculis and 12 Neighboring Stars. George Gatewood and Sabatino Sofia. **204**, L89, 22-C3 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer. **209**, 525, 95-B4 (1976)
- GATLEY, I. One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. M. W. Werner, I. Gatley, D. A. Harper, E. E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson. **204**, 420, 19-A13 (1976)
- Infrared Studies of an Ionized Front Region in the Orion Nebula. E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner. **207**, 770, 68-G8 (1976)

- GAUTIER, T. N., III. A Lower Limit on the Surface $^{12}\text{C}/^{13}\text{C}$ Ratio in Alpha Orionis. *T. N. Gautier III, Rodger I. Thompson, Uwe Fink, and Harold P. Larson.* **205**, 841, 40-A10 (1976)
- Infrared Spectra of the Satellites of Saturn: Identification of Water Ice on Iapetus, Rhea, Dione, and Tethys. *Uwe Fink, Harold P. Larson, T. N. Gautier III, and R. R. Treffers.* **207**, L63, 62-F1 (1976)
- Detection of Molecular Hydrogen Quadrupole Emission in the Orion Nebula. *T. N. Gautier III, Uwe Fink, Richard R. Treffers, and Harold P. Larson.* **207**, L129, 67-E3 (1976)
- The Spectrum of the Planetary Nebulae NGC 7027 from 0.9 to 2.7 Microns. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III.* **209**, 793, 99-D3 (1976)
- The 1.4-2.7 Micron Spectrum of the Point Source at the Galactic Center. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III.* **209**, L115, 101-E1 (1976)
- GAVRILOVA, N. N. Abundances of $Z > 52$ Nuclei in Galactic Cosmic Rays: Long-Term Averages Based on Studies of Pallasites. *O. Otgonsuren, V. P. Perelygin, S. G. Stetsenko, N. N. Gavrilova, C. Fiéni, and P. Pellas.* **210**, 258, 105-G1 (1976)
- GEARHART, M. R. Spectra of Some Ohio Radio Sources: List V. *M. R. Gearhart, J. D. Kraus, and B. H. Andrew.* **30**, 337, 6-D1 (1976) (Abstr. in **204**, 313, 16-D10)
- GEHALLE, T. R. Spectral and Spatial Resolution of the 12.8 Micron Ne II Emission from the Galactic Center. *E. R. Wollman, T. R. Geballe, J. H. Lacy, C. H. Townes, and D. M. Rank.* **205**, L5, 32-A7 (1976)
- GEHRZ, R. D. A Search for Anonymous AFCRL Infrared Sources. *R. D. Gehrz and J. A. Hackwell.* **206**, L161, 56-F1 (1976)
- Infrared Light Variations of Wolf-Rayet Stars. *J. A. Hackwell, R. D. Gehrz, J. R. Smith, and D. W. Strecker.* **210**, 137, 104-E5 (1976)
- GELLER, M. J. Bright Galaxies in Rich Clusters: Test of A Statistical Model for Magnitude Distributions. *M. J. Geller and P. J. E. Peebles.* **206**, 939, 55-G1 (1976)
- GELLER, MARGARET J. On the Use of Correlation Functions in Finding Physical Associations of Galaxies. *S. Michael Fall, Margaret J. Geller, Bernard J. T. Jones, and Simon D. M. White.* **205**, L121, 42-B1 (1976)
- Galaxy Correlations as a Function of Morphological Type. *Marc Davis and Margaret J. Geller.* **208**, 13, 74-B3 (1976)
- GERASSIMENKO, M. High-Energy X-Ray Observations of the Southern Sky. *G. R. Ricker, M. Gerassimenko, J. E. McClintock, and S. G. Ryckman.* **207**, 333, 61-E5 (1976)
- GEREND, D. Analysis of Periodic Optical Variability in the Compact X-Ray Source Hercules X-1/HZ Herculis. *J. Deeter, L. Crosa, D. Gerend, and P. Boynton.* **206**, 861, 55-A1 (1976)
- Optical Clues to the Nature of Hercules X-1/HZ Herculis. *D. Gerend and P. E. Boynton.* **209**, 562, 95-E1 (1976)
- GEROLA, HUMBERTO. Enhanced Effects of Starlight on the Interstellar Medium. *Humberto Gerola and Robert A. Schwartz.* **206**, 452, 49-B9 (1976)
- GEZARI, D. Y. Far-Infrared Observations of IRC +10216. *M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook.* **208**, 396, 79-C1 (1976)
- One-Millimeter Continuum Emission Studies of Four Molecular Clouds. *W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer.* **209**, 94, 89-A3 (1976)
- GIACCONI, R. The Long-Term Intensity Behavior of Centaurus X-3. *E. J. Schreier, K. Swartz, R. Giacconi, G. Fabbiano, and J. Morin.* **204**, 539, 20-D2 (1976)
- GIBSON, D. M. The Detection of Radio Emission from the RS CVn Binary HR 1099. *Frazer N. Owen, T. W. Jones, and D. M. Gibson.* **210**, L27, 106-C10 (1976)
- GIGUERE, P. T. IRC +10 420: A Hot Supergiant Maser. *P. T. Giguere, N. J. Woolf, and J. C. Webber.* **207**, L195, 72-E3 (1976)
- The Prospects for Astronomical Optical Rotary Dispersion Studies. *P. T. Giguere, L. E. Snyder, and F. S. Richardson.* **208**, 365, 78-G10 (1976)
- GILBERT, G. R. TV Spectroscopy of Absorption Lines in the Far-Red of PHL 957. *G. R. Gilbert, J. R. P. Angel, S. A. Grandi, G. D. Coleman, P. A. Strittmatter, R. H. Cromwell, and E. B. Jensen.* **206**, L129, 56-C12 (1976)
- GILES, J. W. The Far-Ultraviolet (1180-1950 Å) Emission Spectrum of Arcturus. *W. R. McKinney, H. W. Moos, and J. W. Giles.* **205**, 848, 40-B5 (1976)
- GILLET, F. C. Infrared Spectrophotometry of OH 231.8+4.2 = OH 0739-14. *F. C. Gillett and B. T. Soifer.* **207**, 780, 69-A4 (1976)
- 8-13 Micron Spectrophotometry of NGC 1068. *D. E. Kleinmann, F. C. Gillett, and E. L. Wright.* **208**, 42, 74-D6 (1976)
- GILMORE, W. Observation of the 616-515 Transitions of Acetaldehyde in Sagittarius B2. *W. Gilmore, M. Morris, D. R. Johnson, F. J. Lovas, B. Zuckerman, B. E. Turner, and P. Palmer.* **204**, 43, 13-D10 (1976)
- GILRA, DAYA P. Observations of Near-Infrared C2 Bands in the Spectra of Carbon Stars: Erratum. *Daya P. Gilra.* **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 145, 51-E1)
- CRL 2688: A Post-Carbon-Star Object and Probable Planetary Nebula Progenitor. *B. Zuckerman, Daya P. Gilra, B. E. Turner, M. Morris, and Patrick Palmer.* **205**, L15, 32-B2 (1976)
- GINGOLD, ROBERT A. The Evolutionary Status of Population II Cepheids. *Robert A. Gingold.* **204**, 116, 14-C10 (1976)
- GINSBURG, J. Fourier Analysis of Steady-State Reaction Schemes for Interstellar Molecules. *P. J. Kuntz, G. F. Mitchell, and J. Ginsburg.* **209**, 116, 89-B12 (1976)
- GIUFFRIDA, THOMAS S. The Variable Radio Nucleus of M81. *Patrick C. Crane, Thomas S. Giuffrida, and John B. Carlson.* **203**, L113, 11-D11 (1976)
- GIUSTI-SUZOR, A. Quantum Effects in the Formation of CH^+ by Radiative Association. *H. Abgrall, A. Giusti-Suzor, and E. Roueff.* **207**, L69, 62-F6 (1976)
- GLACKIN, D. L. The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas.* **203**, 509, 7-D12 (1976)
- GLASPEY, J. W. Profiles of the [O III] Nebular Lines in Two Bright Seyfert Galaxies. *J. W. Glaspey, J. A. Eilek, G. G. Fahlman, and J. R. Auman.* **203**, 335, 5-D13 (1976)
- Spectroscopic Observations of Seyfert Galaxy Nuclei. *J. W. Glaspey, G. A. H. Walker, and Alan Stockton.* **210**, 27, 103-C6 (1976)
- GLASS, E. N. On a Spherical Star System with a Collapsed Core. *E. N. Glass and Bahram Mashhoon.* **205**, 570, 35-F9 (1976)
- GLASS, I. S. Emission-Line Stars in the Large Magellanic Cloud: Spectroscopy and Infrared Photometry. *D. A. Allen and I. S. Glass.* **210**, 666, 112-D11 (1976)
- GLASSGOLD, A. E. Thermal-chemical Instabilities in CO Clouds. *A. E. Glassgold and William D. Langer.* **204**, 403, 18-G9 (1976)
- Abundances of Simple Oxygen-bearing Molecules and Ions in Interstellar Clouds. *A. E. Glassgold and William D. Langer.* **206**, 85, 43-G4 (1976)
- GLEESON, A. M. A Higher Stability Limit for Neutron Stars. *Richard L. Bowers, A. M. Gleeson, and R. Daryl Pedigo.* **205**, 261, 30-G4 (1976)
- GLEESON, L. J. Cosmic-Ray Gradients from Pioneer-10 and Pioneer-11. *W. I. Axford, W. Fillius, L. J. Gleeson, and W.-H. Ip.* **210**, 603, 110-D9 (1976)
- GLENCROSS, W. M. Condensation of Material in Quiescent Prominences. *W. M. Glencross.* **207**, L205, 72-F1 (1976)
- GLOECKLER, G. Anomaly in the Quiet-Time Helium Spectrum at 1 MeV per Nucleon. *G. Gloeckler, D. Hovestadt, B. Klecker, O. Vollmer, and C. Y. Fan.* **204**, 920, 26-A6 (1976)
- Ion and Electron Pulses Observed in the Magnetotail and

- Rapid Annihilation of Magnetic Field Lines. *C. Y. Fan, G. Gloeckler, and D. Hovestadt*. **209**, 259, 90-F8 (1976)
- A Direct Measurement of the Charge States of Energetic Iron Emitted by the Sun. *G. Gloeckler, R. K. Sciambi, C. Y. Fan, and D. Hovestadt*. **209**, L93, 97-A9 (1976)
- Time Dispersion of Energetic Solar Particles: Unexpected Velocity and Species Dependence. *J. J. O'Gallagher, D. Hovestadt, B. Klecker, G. Gloeckler, and C. Y. Fan*. **209**, L97, 97-A13 (1976)
- GOAD, J. W. Color and Metallicity Gradients in E and S0 Galaxies. *S. E. Strom, K. M. Strom, J. W. Goad, F. J. Vrba, and W. Rice*. **204**, 684, 23-E3 (1976)
- GOAD, JEAN W. Kinematics of the Gas in the Nuclear Disk of M81. *Jean W. Goad*. **32**, 89, 23-A1 (1976) (Abstr. in **208**, 271, 76-G9)
- GODFREY, P. D. Detection of Interstellar Vibrationally Excited Cyanoacetylene. *F. O. Clark, R. D. Brown, P. D. Godfrey, J. W. V. Storey, and D. R. Johnson*. **210**, L139, 115-B9 (1976)
- GOETZ, W. The Rotation-Vibration Spectrum of HD: Wavelength and Intensity Measurements of the 3-0, 4-0, 5-0, and 6-0 Electric Dipole Bands. *A. R. W. McKellar, W. Goetz, and D. A. Ramsay*. **207**, 663, 66-D6 (1976)
- GOLDBERG, JOSHUA N. Comments on Gravitational Radiation Damping and Energy Loss in Binary Systems. *Jürgen Ehlers, Arnold Rosenblum, Joshua N. Goldberg, and Peter Havas*. **208**, L77, 82-C2 (1976)
- GOLDMAN, M. V. Three-Dimensional Langmuir Wave Instabilities in Type III Solar Radio Bursts. *S. Bardwell and M. V. Goldman*. **209**, 912, 100-F1 (1976)
- GOLDREICH, PETER. OH-IR Stars. I. Physical Properties of Circumstellar Envelopes. *Peter Goldreich and Nick Scoville*. **205**, 144, 29-E1 (1976)
- OH-IR Stars. II. A Model for the 1612 MHz Masers. *Moshe Elitzur, Peter Goldreich, and Nick Scoville*. **205**, 384, 33-F13 (1976)
- GOLDSMITH, P. F. Observations of the $^{12}\text{C}/^{13}\text{C}$ Ratio in Four Galactic Sources of Formaldehyde. *D. N. Matsakis, M. F. Chui, P. F. Goldsmith, and C. H. Townes*. **206**, L63, 47-E11 (1976)
- GOLDSTEIN, MELVYN L. A Nonlinear Theory of Cosmic-Ray Pitch-Angle Diffusion in Homogeneous Magnetostatic Turbulence. *Melvyn L. Goldstein*. **204**, 900, 25-F13 (1976)
- GOLDSTEIN, S. J., JR. On the Aggregate Flux of Weak Point Sources at 1404 MHz. *S. J. Goldstein, Jr., A. P. Marscher, and R. T. Rood*. **210**, 321, 107-D4 (1976)
- GOODKIND, JOHN M. Search for Evidence of a Preferred Reference Frame. *Richard J. Warburton and John M. Goodkind*. **208**, 881, 85-F10 (1976)
- GORDON, CHARLOTTE. Type I Supernovae. II. The Spectrum of SN 1972e in NGC 5253, 250 Days after the Explosion. *Charlotte Gordon*. **207**, 860, 69-G2 (1976)
- GORDON, COURTNEY P. Neutral Hydrogen in the W41 Region. *Courtney P. Gordon, Kurtiss J. Gordon, and Michael R. Jacobson*. **203**, 593, 9-C13 (1976)
- GORDON, KURTISS J. Neutral Hydrogen in the W41 Region. *Courtney P. Gordon, Kurtiss J. Gordon, and Michael R. Jacobson*. **203**, 593, 9-C13 (1976)
- GORDON, M. A. Carbon Monoxide in the Galaxy. II. The Thickness of the Galactic CO Layer. *W. B. Burton and M. A. Gordon*. **207**, L189, 72-D11 (1976)
- Carbon Monoxide in the Galaxy. I. The Radial Distribution of CO, H₂, and Nucleons. *M. A. Gordon and W. B. Burton*. **208**, 346, 78-F4 (1976)
- GOSLING, J. T. Solar Cycle Evolution of High-Speed Solar Wind Streams. *S. J. Bame, J. R. Asbridge, W. C. Feldman, and J. T. Gosling*. **207**, 977, 71-A11 (1976)
- GOTT, J. RICHARD, III. On the Formation of Spiral and Elliptical Galaxies. *J. Richard Gott III and Trinh X. Thuan*. **204**, 649, 23-B8 (1976)
- The Mean Luminosity and Mass Densities in the Universe. *J. Richard Gott III and Edwin L. Turner*. **209**, 1, 88-A4 (1976)
- Groups of Galaxies. II. The Luminosity Function. *Edwin L. Turner and J. Richard Gott III*. **209**, 6, 88-A9 (1976)
- GOTT, RICHARD, III. Groups of Galaxies. I. A Catalog. *Edwin L. Turner and Richard Gott III*. **32**, 409, 29-E1 (1976) (Abstr. in **209**, 650, 96-D11)
- GOTTESMAN, S. T. Radio Emission from the X-Ray Source A02620-00. *Frazer N. Owen, Thomas J. Balonek, John Dickey, Yervant Terzian, and S. T. Gottesman*. **203**, L15, 4-D6 (1976)
- Gas Motions in the Center of the Galaxy NGC 253 from H I Line Interferometry. *S. T. Gottesman, R. Lucas, L. Weliachew, and M. C. H. Wright*. **204**, 699, 23-F4 (1976)
- GOTTLIEB, C. A. Optical and Millimeter-Wave Observations of the M8 Region. *Charles J. Lada, T. R. Gull, C. A. Gottlieb, and E. W. Gottlieb*. **203**, 159, 2-F2 (1976)
- Observations of Interstellar Silicon Monoxide. *Dale F. Dickinson, C. A. Gottlieb, Elaine W. Gottlieb, and M. M. Litvak*. **206**, 79, 43-F12 (1976)
- H₂O and 22 GHz Continuum Observations of M17. *Charles J. Lada, Dale F. Dickinson, C. A. Gottlieb, and E. L. Wright*. **207**, 113, 59-C1 (1976)
- GOTTLIEB, E. W. Optical and Millimeter-Wave Observations of the M8 Region. *Charles J. Lada, T. R. Gull, C. A. Gottlieb, and E. W. Gottlieb*. **203**, 159, 2-F2 (1976)
- GOTTLIEB, ELAINE W. Observations of Interstellar Silicon Monoxide. *Dale F. Dickinson, C. A. Gottlieb, Elaine W. Gottlieb, and M. M. Litvak*. **206**, 79, 43-F12 (1976)
- The Photometric Histories of CRL 2688 (the "Egg" Nebula) and CRL 618. *Elaine W. Gottlieb and Wm. Liller*. **207**, L135, 67-E10 (1976)
- GOUGH, D. O. Convective Instability in a Compressible Atmosphere. II. *D. O. Gough, D. R. Moore, E. A. Spiegel, and N. O. Weiss*. **206**, 536, 50-A12 (1976)
- GOULD, ROBERT J. Deviation from a Maxwellian Velocity Distribution in Regions of Interstellar Molecular Hydrogen. *Robert J. Gould and Martin Levy*. **206**, 435, 49-A5 (1976)
- GRADER, R. An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. *F. Seward, G. Burginyon, R. Grader, R. Hill, T. Palmieri, P. Stoering, and A. Toor*. **205**, 238, 30-E8 (1976)
- GRAHAM, J. A. Gaps in the Blue Horizontal Branch. *Barry Newell and J. A. Graham*. **204**, 804, 24-G1 (1976)
- GRAHAM, W. R. M. The C₄ Molecule. *W. R. M. Graham, K. T. Dismuke, and W. Weltner, Jr.*. **204**, 301, 16-C12 (1976)
- GRANDI, S. A. TV Spectroscopy of Absorption Lines in the Far-Red of PHL 957. *G. R. Gilbert, J. R. P. Angel, S. A. Grandi, G. D. Coleman, P. A. Strittmatter, R. H. Cromwell, and E. B. Jensen*. **206**, L129, 56-C12 (1976)
- GRANDI, STEVEN A. The Excitation of Permitted Lines in Gaseous Nebulae. *Steven A. Grandi*. **206**, 658, 51-D10 (1976)
- GRASDALEN, G. L. Additional Observations of the Unidentified Infrared Features at 3.28 and 3.4 Microns. *G. L. Grasdalen and R. R. Joyce*. **205**, L11, 32-A12 (1976)
- Brackett- α Emission in the Becklin-Neugebauer Object. *G. L. Grasdalen*. **205**, L83, 37-B13 (1976)
- Infrared Observations of NGC 5128. *G. L. Grasdalen and R. R. Joyce*. **208**, 317, 78-D3 (1976)
- Paschen-Alpha in 3C 273. *G. L. Grasdalen*. **208**, L11, 77-A11 (1976)
- GREEN, RICHARD F. On the Reality of Periodicities in the Redshift Distribution of Emission-Line Objects. *Richard F. Green and Douglas O. Richstone*. **208**, 639, 83-A4 (1976)
- GREEN, SHELDON. Rotational Excitation of CO by Collisions with He, H, and H₂ under Conditions in Interstellar Clouds. *Sheldon Green and Patrick Thaddeus*. **205**, 766, 39-B5 (1976)
- GREENSTEIN, GEORGE. Superfluidity in Neutron Stars. II. After a Period Jump. *George Greenstein*. **208**, 836, 85-C6 (1976)
- Radius of the Vela Pulsar. *George Greenstein and Jeffrey E. McClintock*. **208**, L41, 77-C12 (1976)
- GREENSTEIN, JESSE L. Some Further Degenerate Stars. IX.

- Jesse L. Greenstein. **207**, L119, 67-D8 (1976)
 Degenerate Stars with Helium Atmospheres. *Jesse L. Greenstein*. **210**, 524, 109-E5 (1976)
- GREGORY, P. C. Radio Continuum Observations of NML Cygni. *P. C. Gregory and E. R. Seaquist*. **204**, 626, 21-C5 (1976)
- GREGORY, S. A. The Peculiar Object He 2-467. *J. H. Lutz, T. E. Lutz, J. B. Kaler, D. E. Osterbrock, and S. A. Gregory*. **203**, 481, 7-B9 (1976)
 Direct Observations of the Large-Scale Distribution of Galaxies. *W. G. Tifft and S. A. Gregory*. **205**, 696, 38-C13 (1976)
- GREGORY, STEPHEN A. Systematic Redshifts in the Outer Regions of the Coma Cluster. *Stephen A. Gregory and William G. Tifft*. **205**, 716, 38-E7 (1976)
 Gross Optical Properties of the Coma Cluster. *Stephen A. Gregory and William G. Tifft*. **206**, 934, 55-F9 (1976)
- GREISEN, ERIC W. The Small-Scale Structure of Interstellar Hydrogen. *Eric W. Greisen*. **203**, 371, 5-G7 (1976)
 Small-Scale Structure in High-Velocity Clouds. *Eric W. Greisen and Thomas R. Cram*. **203**, L119, 11-E3 (1976)
- GRINDLAY, J. Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. *J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver*. **205**, L127, 42-B6 (1976)
 Scattering Model for X-Ray Bursts: Massive Black Holes in Globular Clusters. *J. Grindlay and H. Gursky*. **205**, L131, 42-B10 (1976)
 Uhuru Observations of the Norma X-Ray Burster. *J. Grindlay and H. Gursky*. **209**, L61, 96-F8 (1976)
 On the Stability of the Period of Cygnus X-3. *D. R. Parsignault, E. Schreier, J. Grindlay, and H. Gursky*. **209**, L73, 96-G5 (1976)
- GRINDLAY, J. E. Improved Position for the X-Ray Source Associated with the Globular Cluster NGC 6441. *J. E. Grindlay, H. Schnopper, E. Schreier, H. Gursky, and D. R. Parsignault*. **206**, L23, 47-B11 (1976)
 Evidence for a Variable Flux of $>10^{11}$ eV Gamma-Rays from NP 0532. *J. E. Grindlay, H. F. Helmken, and T. C. Weekes*. **209**, 592, 95-G3 (1976)
- GROSS, PETER G. A Binary Hypothesis for the Subdwarf B Stars. *John G. Mengel, John Norris, and Peter G. Gross*. **204**, 488, 19-G1 (1976)
 Horizontal-Branch Evolution with Semiconvection. II. Theoretical Sequences. *Allen V. Sweigart and Peter G. Gross*. **32**, 367, 29-A2 (1976) (Abstr. in **209**, 650, 96-D11)
- GUDEHUS, DONALD H. Velocities of Galaxies in Cluster A1367. *Donald H. Gudehus*. **208**, 267, 76-G4 (1976)
- GULKIS, SAMUEL. The Problem of Spiral Galaxies and Satellite Radio Sources. *Halton Arp, Roland Carpenter, Samuel Gulkis, and Michael Klein*. **205**, 721, 38-E12 (1976)
- GULL, GEORGE E. Far-Infrared Spectral Observations of M42 and M17. *Dennis B. Ward, Brian Dennison, George E. Gull, and Martin Harwit*. **205**, L75, 37-B6 (1976)
- GULL, T. R. Optical and Millimeter-Wave Observations of the M8 Region. *Charles J. Lada, T. R. Gull, C. A. Gottlieb, and E. W. Gottlieb*. **203**, 159, 2-F2 (1976)
- GULL, THEODORE. Spectroscopic Observations of the Candidate Star Coincident with A0620-00. *Theodore Gull, Donald G. York, Theodore P. Snow, Jr., and Karl G. Henize*. **206**, 260, 45-F6 (1976)
- GULLAHORN, G. E. Further Observations of the Binary Pulsar PSR 1913+16. *J. H. Taylor, R. A. Hulse, L. A. Fowler, G. E. Gullahorn, and J. M. Rankin*. **206**, L53, 47-E1 (1976)
- GULLAHORN, GORDON E. Timing Results for Seven Pulsars. *Gordon E. Gullahorn, Robert R. Payne, John M. Rankin, and David W. Richards*. **205**, L151, 42-C13 (1976)
- GUNN, JAMES E. Evolutionary Synthesis of the Stellar Population in Elliptical Galaxies. I. Ingredients, Broad-Band Colors, and Infrared Features. *Beatrice M. Tinsley and James E. Gunn*. **203**, 52, 1-D12 (1976)
 Luminosity Functions and the Evolution of Low-Mass Population I Giants. *Beatrice M. Tinsley and James E. Gunn*. **206**, 525, 50-A1 (1976)
 Dynamical Friction: The Hubble Diagram as a Cosmological Test. *James E. Gunn and Beatrice M. Tinsley*. **210**, 1, 103-A4 (1976)
- GURSKY, H. Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. *J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver*. **205**, L127, 42-B6 (1976)
 Scattering Model for X-Ray Bursts: Massive Black Holes in Globular Clusters. *J. Grindlay and H. Gursky*. **205**, L131, 42-B10 (1976)
 Improved Position for the X-Ray Source Associated with the Globular Cluster NGC 6441. *J. E. Grindlay, H. Schnopper, E. Schreier, H. Gursky, and D. R. Parsignault*. **206**, L23, 47-B11 (1976)
 Search for X-Ray Emission from Globular Clusters Using Uhuru Data. *M. P. Ulmer, S. S. Murray, H. Gursky, and J. N. Bahcall*. **208**, 47, 74-D11 (1976)
 Uhuru Observations of the Norma X-Ray Burster. *J. Grindlay and H. Gursky*. **209**, L61, 96-F8 (1976)
 On the Stability of the Period of Cygnus X-3. *D. R. Parsignault, E. Schreier, J. Grindlay, and H. Gursky*. **209**, L73, 96-G5 (1976)
- GURSKY, HERBERT. A Measurement of Fluctuations in the X-Ray Background by Uhuru. *Daniel A. Schwartz, Stephen S. Murray, and Herbert Gursky*. **204**, 315, 18-A4 (1976)
- HAAS, R. W. Absolute Calibration of Millimeter-Wavelength Spectral Lines. *B. L. Ulich and R. W. Haas*. **30**, 247, 5-C1 (1976) (Abstr. in **202**, 312, 16-D9)
- HACHENBERG, O. Cygnus A at 8.5 Millimeter Wavelength. *O. Hachenberg, E. Fürst, W. Harth, P. Steffen, W. Wilson, and W. Hirth*. **206**, L19, 47-B6 (1976)
- HACK, M. The Ultraviolet Spectrum of Beta Lyrae. II. *M. Hack, J. B. Hutchings, Y. Kondo, G. E. McCluskey, and M. K. Tulloch*. **206**, 777, 54-A11 (1976)
- HACK, MARGHERITA. The Ultraviolet Spectrum of Alpha Lyrae. *Rosanna Faragginana, Margherita Hack, and David S. Leckrone*. **32**, 501, 31-B1 (1976) (Abstr. in **209**, 648, 96-D9)
- HACKWELL, J. A. A Search for Anonymous AFCRL Infrared Sources. *R. D. Gehrz and J. A. Hackwell*. **206**, L161, 56-F1 (1976)
 Infrared Light Variations of Wolf-Rayet Stars. *J. A. Hackwell, R. D. Gehrz, J. R. Smith, and D. W. Strecker*. **210**, 137, 104-E5 (1976)
- HAGEN, F. A. The Isotopic Composition of Cosmic Rays with $5 \leq Z \leq 26$. *A. J. Fisher, F. A. Hagen, R. C. Maehl, J. F. Ormes, and J. F. Arens*. **205**, 938, 41-B3 (1976)
- HAINEBACH, KEM L. Consistency of Cosmic-Ray Composition, Acceleration Mechanism and Supernova Models. *Kem L. Hainebach, Eric B. Norman, and David N. Schramm*. **203**, 245, 3-F1 (1976)
 Cosmic-Ray Spallative Origin of the Rare Odd-Odd Nuclei, Consistent with Light Element Production. *Kem L. Hainebach, David N. Schramm, and J. B. Blake*. **205**, 920, 40-G12 (1976)
- GALACTIC EVOLUTION MODELS AND THE RHENIUM-187/OSMIUM-187 CHRONOMETER: A Greater Age for the Galaxy. *Kem L. Hainebach and David N. Schramm*. **207**, L79, 67-A9 (1976)
- HAISCH, BERNHARD M. A Tensor Formulation of the Equation of Transfer for Spherically Symmetric Flows. *Bernhard M. Haisch*. **205**, 520, 35-C1 (1976)
 Properties of the Chromosphere-Corona Transition Region in Capella. *Bernhard M. Haisch and Jeffrey L. Linsky*. **205**, L39, 32-C10 (1976)
 Theoretical Wavelength Dependence of Polarization in Early-Type Stars. *Bernhard M. Haisch and Joseph P. Cassinelli*. **208**, 253, 76-F3 (1976)
- HALL, R. D. Detection of Nuclear Gamma Rays from Centaurus A. *R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes*. **210**, 631, 112-B4 (1976)

- HANSEN, C. J. Thermonuclear Reaction Rates Derived from Thick-Target Yields. *N. A. Roughton, M. J. Fritts, R. J. Peterson, C. S. Zaidins, and C. J. Hansen.* **205**, 302, 31-C4 (1976)
- Stellar Neutrino Pair Emission from De-excitation of Nuclear State via Weak Neutral Currents. *J. P. Crawford, C. J. Hansen, and K. T. Mahanthappa.* **206**, 208, 45-B8 (1976)
- HANSEN, CARL J. The Equilibrium and Stability of Uniformly Rotating, Isothermal Gas Cylinders. *Carl J. Hansen, Morris L. Aizenman, and Randy L. Ross.* **207**, 736, 68-E1 (1976)
- HARDEE, PHILIP E. A Mechanism for the Production of Pulsar Radio Radiation. *Philip E. Hardee and William K. Rose.* **210**, 533, 109-F1 (1976)
- HARMS, R. The Redshift of 0938+119. *E. A. Beaver, R. Harms, C. Hazard, H. S. Murdoch, R. F. Carswell, and P. F. Strittmatter.* **203**, L5, 4-C6 (1976)
- HARPER, D. A. Far-Infrared Photometry of NGC 1068. *C. M. Telesco, D. A. Harper, and R. F. Loewenstein.* **203**, L53, 8-B8 (1976)
- One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. *M. W. Werner, I. Gatley, D. A. Harper, E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson.* **204**, 420, 19-A13 (1976)
- The Infrared Emission of M17. *D. A. Harper, F. J. Low, G. H. Rieke, and Harley A. Thronson, Jr.* **205**, 136, 29-D6 (1976)
- HARRINGTON, J. PATRICK. Time-dependent Effects in the Nebular Shell of FG Sagittae. *J. Patrick Harrington and Paul A. Maronni.* **206**, 458, 49-C1 (1976)
- HARRINGTON, ROBERT S. LP 380-5/6: A Binary System Containing a Late-Type Degenerate Star. *Conard C. Dahn and Robert S. Harrington.* **204**, L91, 22-C5 (1976)
- HARRIS, D. E. Radio-optical Candidates for the High-Latitude X-Ray Sources 3U 1555+27 and 3U 1809+50. *Neta A. Bahcall, D. E. Harris, and R. G. Strom.* **209**, L17, 92-B3 (1976)
- HARRIS, GRETCHEN L. Evolved Stars in Open Clusters. *Gretchen L. Harris.* **30**, 451, 8-F1 (1976) (Abstr. in **205**, 309, 31-C11)
- HARRIS, GRETCHEN L. H. The 10.8 Day Cepheid TW Normae and the Cluster Lynga Number 6. *Sidney van den Bergh and Gretchen L. H. Harris.* **208**, 767, 84-D12 (1976)
- The Cepheid SV Crucis and the Cluster Ruprecht 97. *Sidney van den Bergh, Elizabeth Herbst, Gretchen L. H. Harris, and William Herbst.* **208**, 770, 84-E7 (1976)
- The Cepheid CS Velorum and the Cluster Ruprecht 79. *Gretchen L. H. Harris and Sidney van den Bergh.* **209**, 130, 89-C12 (1976)
- Effects of Heavy-Element Abundances on the Color-Magnitude Diagrams of Young Clusters in the Galaxy and the Magellanic Clouds. *Gretchen L. H. Harris and Robert G. Deupree.* **209**, 402, 93-G6 (1976)
- HARRIS, WILLIAM E. The Space Distribution of Globular Clusters in M87. *William E. Harris and Malcolm G. Smith.* **207**, 1036, 71-F10 (1976)
- New Color-Magnitude Diagrams for Four Globular Clusters. *William E. Harris, René Racine, and James de Roux.* **31**, 13, 11-B1 (1976) (Abstr. in **205**, 655, 36-E10)
- HARTH, W. Cygnus A at 8.5 Millimeter Wavelength. *O. Hachenberg, E. Furst, W. Harth, P. Steffen, W. Wilson, and W. Hirth.* **206**, L19, 47-B6 (1976)
- HARTMAN, R. C. Cosmic-Ray Positron and Negatron Spectra between 20 and 800 MeV Measure in 1974. *R. C. Hartman and C. J. Pellerin.* **204**, 927, 26-B1 (1976)
- HARTMANN, LEE. Interpretation of the Spectral and Photometric Variations of R Coronae Borealis. *Lee Hartmann and John P. Apruzese.* **203**, 610, 9-E2 (1976)
- HARTMANN, LEE W. Zeeman Observations of the H α Region in BY Draconis. *Christopher M. Anderson, Lee W. Hartmann, and Bernard W. Bopp.* **204**, L51, 17-D9 (1976)
- HARTOOG, M. R. A Survey of Peculiar and Metal-lined A Stars for the Actinides. *Charles R. Cowley, G. C. L. Aikman, and M. R. Hartoog.* **206**, 196, 45-A10 (1976)
- HARTOOG, MARK R. The Frequency of Peculiar A and Metallic-Line Stars in Open Clusters. *Mark R. Hartoog.* **205**, 807, 39-E6 (1976)
- HARTWICK, F. D. A. Metal-rich Globular Clusters in the Galaxy. III. The "X-Ray" Globular Cluster NGC 6441. *James E. Hesser and F. D. A. Hartwick.* **203**, 97, 2-A1 (1976)
- Metal-rich Globular Clusters in the Galaxy. IV. A Color-Magnitude Diagram for NGC 6304. *James E. Hesser and F. D. A. Hartwick.* **203**, L13, 2-B10 (1976)
- Cyanogen Strengths of Globular Cluster Post-Main-Sequence Stars. *James E. Hesser, F. D. A. Hartwick, and Robert D. McClure.* **207**, L113, 67-D2 (1976)
- Subdwarfs among the Old Disk Population. *F. D. A. Hartwick, D. Crampton, and A. P. Cowley.* **208**, 776, 84-F2 (1976)
- Upper Limits to the Mass of the Virgo Cluster of Galaxies. *F. D. A. Hartwick.* **208**, L13, 77-A13 (1976)
- The Chemical Evolution of the Galactic Halo. *F. D. A. Hartwick.* **209**, 418, 94-A9 (1976)
- Instrumental Color-Magnitude Diagrams for 24 Large Magellanic Cloud Star Clusters. *James E. Hesser, F. D. A. Hartwick, and Patricia Ugarte P.* **32**, 283, 26-F1 (1976) (Abstr. in **208**, 272, 76-G10)
- HARVEL, C. A. Radiative Transfer in Circumstellar Dust Shells. *C. A. Harvel.* **210**, 862, 114-E7 (1976)
- HARVEY, J. W. Digital Image Reconstruction Applied to Alpha Orionis. *C. R. Lynds, S. P. Worden, and J. W. Harvey.* **207**, 174, 59-G9 (1976)
- HARVEY, P. M. Far-Infrared Observations of IRC + 10216. *M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook.* **208**, 396, 79-C1 (1976)
- HARVEY, PAUL M. High-Resolution Far-Infrared Observations of the Galactic Center. *Paul M. Harvey, Murray F. Campbell, and William F. Hoffman.* **205**, L69, 37-B1 (1976)
- HARWIT, MARTIN. Far-Infrared Spectral Observations of M42 and M17. *Dennis B. Ward, Brian Dennison, George E. Gull, and Martin Harwit.* **205**, L75, 37-B6 (1976)
- HASCHICK, A. D. The Unusual H $_2$ O Maser Source near Herbig-Haro Object Number 11. *K. Y. Lo, M. Morris, J. M. Moran, and A. D. Haschick.* **204**, L21, 17-B8 (1976)
- HATCHETT, STEPHEN. Transfer of X-Rays through a Spherically Symmetric Gas Cloud. *Stephen Hatchett, James Buff, and Richard McCray.* **206**, 847, 54-F12 (1976)
- HAUSER, M. G. One-Millimeter Continuum Emission Studies of Four Molecular Clouds. *W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer.* **209**, 94, 89-A3 (1976)
- HAUSMAN, MARK A. Optical Structure of the X-Ray Globular Clusters NGC 6440 and NGC 6441. *Neta A. Bahcall and Mark A. Hausman.* **207**, L181, 72-D1 (1976)
- HAVAS, PETER. Comments on Gravitational Radiation Damping and Energy Loss in Binary Systems. *Jürgen Ehlers, Arnold Rosenblum, Joshua N. Goldberg, and Peter Havas.* **208**, L77, 82-C2 (1976)
- HAWKING, S. W. Gamma Rays from Primordial Black Holes. *Don N. Page and S. W. Hawking.* **206**, 1, 43-A4 (1976)
- HAYMES, R. C. Detection of Nuclear Gamma Rays from Centaurus A. *R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes.* **210**, 631, 112-B4 (1976)
- HAZARD, C. The Redshift of 0938+119. *E. A. Beaver, R. Harms, C. Hazard, H. S. Murdoch, R. F. Carswell, and P. F. Strittmatter.* **203**, L5, 4-C6 (1976)
- HAZARD, CYRIL. Observations of High-Redshift QSOs from a Molonglo Faint Source Survey. *Jack A. Baldwin, Harding E. Smith, E. Margaret Burbidge, Cyril Hazard, Hugh S. Murdoch, and David L. Jauncey.* **206**, L83, 52-A13 (1976)
- HEARN, D. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Doxsey, G. Jernigan, D. Hearn, H.*

- Bradt, J. Buff, G. W. Clark, J. Delvaile, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper. **203**, L9, 4-C12 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primi, S. Rappaport, and H. Schnopper. **204**, L67, 22-A10 (1976)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primi. **206**, L99, 52-C4 (1976)
- HEARN, D. R. MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primi, and S. A. Rappaport. **203**, L21, 4-D11 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primi, and S. A. Rappaport. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primi, and J. Richardson. **207**, L95, 67-B12 (1976)
- Detection of Soft X-Ray Emission from an Unidentified Source at High Galactic Latitude. D. R. Hearn, J. A. Richardson, and G. W. Clark. **210**, L23, 106-C6 (1976)
- HEARN, DAVID R. Discovery of X-Ray Bursts from MXB 1728-34. Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li. **210**, L13, 106-B11 (1976)
- HEASLEY, J. N. Formation of Spectral Lines with Partial Frequency Redistribution. J. N. Heasley and F. Kneer. **203**, 660, 10-B2 (1976)
- An Alternative Formulation of the Complete Linearization Method for the Solution of Non-LTE Transfer Problems. L. H. Auer and J. N. Heasley. **205**, 165, 29-F8 (1976)
- Structure and Spectrum of Quiescent Prominences: Energy Balance Spectrum. J. N. Heasley and Dimitri Mihalas. **205**, 273, 31-A2 (1976)
- The Fundamental Bands of CO as Chromospheric Indicators in Late-Type Giant Stars. J. N. Heasley and R. W. Milkey. **205**, L43, 32-D1 (1976)
- Departures from LTE in the Fundamental Bands of CO in Cool Stars. D. F. Carbon, R. W. Milkey, and J. N. Heasley. **207**, 253, 60-F7 (1976)
- Structure and Spectrum of Quiescent Prominences. II. Hydrogen and Helium Spectra. J. N. Heasley and R. W. Milkey. **210**, 827, 114-B10 (1976)
- HEILES, CARL. An Almost Complete Survey of 21 Centimeter Radiation for $|b| \geq 10^\circ$. III. The Interdependence of H I, Galaxy Counts, Reddening, and Galactic Latitude. Carl Heiles. **204**, 379, 18-E11 (1976)
- An Almost Complete Survey of 21 Centimeter Line Radiation for $b \geq 10^\circ$. VI. Energetic Expanding H I Shells. Carl Heiles. **208**, L137, 87-A9 (1976)
- HEINTZ, W. D. Orbits of Sixteen Visual Binaries. W. D. Heintz. **208**, 474, 80-B1 (1976)
- HEISE, J. Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver. **205**, L127, 42-B6 (1976)
- HELMKEN, H. Detection of X-Rays from Algol (β Persei). H. W. Schnopper, J. P. Delvaile, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Doxsey. **210**, L75, 111-C1 (1976)
- HELMKEN, H. F. Evidence for a Variable Flux of $>10^{11}$ eV Gamma-Rays from NP 0532. J. E. Grindlay, H. F. Helmken, and T. C. Weekes. **209**, 592, 95-G3 (1976)
- HENIZE, K. G. Skylab Ultraviolet Stellar Spectra: Cool Stars with Hot Secondaries. S. B. Parsons, J. D. Wray, Y. Kondo, K. G. Henize, and G. F. Benedict. **203**, 435, 6-E9 (1976)
- Skylab Ultraviolet Stellar Spectra: A New White Dwarf, HD 149499. S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and M. Laget. **206**, L71, 47-F4 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey. **208**, 468, 80-A9 (1976)
- HENIZE, KARL G. Spectroscopic Observations of the Candidate Star Coincident with A0620-00. Theodore Gull, Donald G. York, Theodore P. Snow, Jr., and Karl G. Henize. **206**, 260, 45-F6 (1976)
- Observations of Southern Emission-Line Stars. Karl G. Henize. **30**, 491, 9-B1 (1976) (Abstr. in **205**, 310, 31-C12)
- HENRIKSEN, R. N. Orbital Evolution of a Singly Condensed, Close Binary by Mass Loss from the Primary and by Accretion Drag on the Condensed Member. M. E. Alexander, W. Y. Chau, and R. N. Henriksen. **204**, 879, 25-E6 (1976)
- A Model for Repeatedly Bursting X-Ray Sources. R. N. Henriksen. **210**, L19, 106-C2 (1976)
- HENRY, PATRICK. Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources. Patrick Henry, Stuart Bowyer, Michael Lampton, Francesco Paresce, and Raymond Cruddace. **205**, 426, 34-C3 (1976)
- Detection of an Extreme-Ultraviolet Source in the Southern Sky. Patrick Henry, Stuart Bowyer, C. G. Rapley, and J. L. Culhane. **209**, L29, 92-C2 (1976)
- HENRY, R. Soft X-Rays from Hercules X-1 During the "Off" State. G. Fritz, S. Narayan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder. **207**, L29, 62-C11 (1976)
- HENRY, R. C. Ultraviolet Observations of Cool Stars. V. The Local Density of Interstellar Matter. W. McClintock, R. C. Henry, H. W. Moos, and J. L. Linsky. **204**, L103, 22-D3 (1976)
- HERBST, ELIZABETH. The Cepheid SV Crucis and the Cluster Ruprecht 97. Sidney van den Bergh, Elizabeth Herbst, Gretchen L. H. Harris, and William Herbst. **208**, 770, 84-E7 (1976)
- HERBST, ERIC. Radiative Association in Dense, H₂-containing Interstellar Clouds. Eric Herbst. **205**, 94, 29-A7 (1976)
- Interstellar COH*. Eric Herbst, Joseph M. Norbeck, Phillip R. Certain, and William Klemperer. **207**, 110, 59-B11 (1976)
- HERBST, WILLIAM. The Cepheid SV Crucis and the Cluster Ruprecht 97. Sidney van den Bergh, Elizabeth Herbst, Gretchen L. H. Harris, and William Herbst. **208**, 770, 84-E7 (1976)
- On the Extinction Law in the Carina Nebula. William Herbst. **208**, 923, 86-C1 (1976)
- HERZO, DENNIS. A Cosmic Gamma-Ray Burst on 1975 May 14. Dennis Herzo, Bruce Dayton, Allen D. Zych, and R. Stephen White. **203**, L115, 11-D13 (1976)
- HESSER, JAMES E. Metal-rich Globular Clusters in the Galaxy. III. The "X-Ray" Globular Cluster NGC 6441. James E. Hesser and F. D. A. Hartwick. **203**, 97, 2-A1 (1976)
- Metal-rich Globular Clusters in the Galaxy. IV. A Color-Magnitude Diagram for NGC 6304. James E. Hesser and F. D. A. Hartwick. **203**, L13, 2-B10 (1976)
- On the Nature of Sigma Orionis E. Nolan R. Walborn and James E. Hesser. **205**, L87, 37-C2 (1976)
- An Optical Search for Ionized Hydrogen in Globular Clusters. Malcolm G. Smith, James E. Hesser, and Stephen J. Shawl. **206**, 66, 43-E13 (1976)

- Cyanogen Strengths of Globular Cluster Post-Main-Sequence Stars. *James E. Hesser, F. D. A. Hartwick, and Robert D. McClure.* **207**, L113, 67-D2 (1976)
- High-Frequency Stellar Oscillations. XI. The ZZ Ceti Star BPM 30551. *James E. Hesser, Barry M. Lasker, and Hermann E. Neupert.* **209**, 853, 100-A8 (1976)
- Instrumental Color-Magnitude Diagrams for 24 Large Magellanic Cloud Star Clusters. *James E. Hesser, F. D. A. Hartwick, and Patricio Ugarte P.* **32**, 283, 26-F1 (1976) (Abstr. in **208**, 272, 76-G10)
- HIGDON, J. C. The Pulsar Contribution to the Galactic Gamma-Ray Emission. *J. C. Higdon and R. E. Lingenfelter.* **208**, L107, 86-F6 (1976)
- HILL, GRAHAM. The Binary Frequency of IC 4665. *David Crampton, Graham Hill, and W. A. Fisher.* **204**, 502, 20-A1 (1976)
- The Radio-flaring Triple System b Persei. *Graham Hill, G. C. L. Aikman, Anne P. Cowley, C. T. Bolton, and J. C. Thomas.* **208**, 152, 75-E12 (1976)
- HILL, JESSE K. H₂ Molecules and the Intercloud Medium. *Jesse K. Hill and David J. Hollenbach.* **209**, 445, 94-C8 (1976)
- HILL, R. An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. *F. Seward, G. Burginyon, R. Grader, R. Hill, T. Palmieri, P. Stoering, and A. Toor.* **205**, 238, 30-E8 (1976)
- HILLEBRANDT, W. Matter in Superstrong Magnetic Fields and the Structure of a Neutron Star's Surface. *W. Hillebrandt and E. Müller.* **207**, 589, 65-F3 (1976)
- HILLS, G. W. Laboratory Observations of the 16 GHz Rotational Transition in NH₂. *G. W. Hills and J. M. Cook.* **209**, L157, 102-A5 (1976)
- HILTNER, W. A. Optical Observations of WRA 977. *D. J. Bord, D. E. Mook, L. Petro, and W. A. Hiltner.* **203**, 689, 10-D2 (1976)
- Optical Identification of A0620-00. *F. Boley, R. Wolfson, H. Bradt, R. Doxsey, G. Jernigan, and W. A. Hiltner.* **203**, L13, 4-D2 (1976)
- Radial-Velocity Variations of Scorpius X-1 Emission Lines. *D. J. Bord, R. J. Messina, D. E. Mook, and W. A. Hiltner.* **206**, L49, 47-D10 (1976)
- HINATA, SATOSHI. Stability of a Beam-Plasma System Against the Excitation of the Longitudinal Mode around Pulsars. *Satoshi Hinata.* **203**, 223, 3-D5 (1976)
- Relativistic Plasma Turbulence and its Application to Pulsar Phenomena. *Satoshi Hinata.* **206**, 282, 46-A4 (1976)
- HINKLE, K. H. The ¹²C/¹³C Ratio in Stellar Atmospheres. VI. Five Luminous Cool Stars. *K. H. Hinkle, D. L. Lambert, and R. L. Snell.* **210**, 684, 112-F4 (1976)
- HINKLE, KENNETH H. Silicon Monoxide in the 4 Micron Infrared Spectrum of Long-Period Variables. *Kenneth H. Hinkle, Thomas G. Barnes, David L. Lambert, and Reinhard Beer.* **210**, L141, 155-B11 (1976)
- HINTENBERGER, H. On the Primordial Abundance of Argon-40. *F. Begemann, H. W. Weber, and H. Hintenberger.* **203**, L155, 11-G9 (1976)
- HINTEREGGER, H. F. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. *J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönäng, O. E. H. Rydbeck, and A. E. Niell.* **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. *T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr.* **206**, L107, 52-C12 (1976)
- HIRTH, W. Cygnus A at 8.5 Millimeter Wavelength. *O. Hachenberg, E. Fürst, W. Harth, P. Steffen, W. Wilson, and W. Hirth.* **206**, L19, 47-B6 (1976)
- HJALMARSON, A. Radio Observations of Interstellar CH. I. O. *E. H. Rydbeck, E. Kollberg, A. Hjalmarson, A. Sume, J. Elldér, and W. M. Irvine.* **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- HJELLMING, R. M. Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner.* **207**, 78, 58-G1 (1976)
- HOAG, A. Optical Search for GX 17+2. *A. Hoag and J. M. Weisberg.* **209**, 908, 100-E12 (1976)
- HOBBS, L. M. Further Studies of Ionization in Interstellar Clouds. *L. M. Hobbs.* **203**, 143, 2-E1 (1976)
- Interstellar Absorption in Intercloud Regions. II. Detection of the Na I Lines. *L. M. Hobbs.* **206**, L117, 52-D6 (1976)
- Observations of Interstellar Titanium toward 47 Stars. *Gerald M. Stokes and L. M. Hobbs.* **208**, L95, 82-D5 (1976)
- HODGE, P. W. H II Regions in NGC 628. II. Analysis of the Spatial Distribution. *R. C. Kennicutt and P. W. Hodge.* **207**, 36, 58-D1 (1976)
- HODGE, PAUL W. H II Region in NGC 628. I. Positions and Sizes. *Paul W. Hodge.* **205**, 728, 38-F5 (1976)
- HODSON, STEPHEN W. A Suggestion for the Alternating Amplitudes of RV Tauri Variables. *Robert G. Deupree and Stephen W. Hodson.* **208**, 426, 79-E10 (1976)
- HOFFMAN, J. A. The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson.* **207**, L95, 67-B12 (1976)
- HOFFMAN, JEFFREY A. Discovery of X-Ray Bursts from MXB 1728-34. *Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li.* **210**, L13, 106-B11 (1976)
- HOFFMAN, W. F. Far-Infrared Observations of IRC +10216. *M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook.* **208**, 396, 79-C1 (1976)
- HOFFMAN, WILLIAM F. High-Resolution Far-Infrared Observations of the Galactic Center. *Paul M. Harvey, Murray F. Campbell, and William F. Hoffman.* **205**, L69, 37-B1 (1976)
- HOLLENBACH, DAVID. H₂ in Expanding Circumstellar Shells. *David Hollenbach, Shih-I Chu, and Richard McCray.* **208**, 458, 79-G13 (1976)
- HOLLENBACH, DAVID J. H₂ Molecules and the Intercloud Medium. *Jesse K. Hill and David J. Hollenbach.* **209**, 445, 94-C8 (1976)
- HOLLIS, J. M. HCN, X-ogen (HCO⁺), and U90.66 Emission Spectra from L134. *L. E. Snyder and J. M. Hollis.* **204**, L139, 27-C4 (1976)
- Radio Detection of the Interstellar Formyl Radical. *L. E. Snyder, J. M. Hollis, and B. L. Ulich.* **208**, L91, 82-D1 (1976)
- Detection, Identification, and Observations of Interstellar H¹³CO⁺. *L. E. Snyder, J. M. Hollis, F. J. Lovas, and B. L. Ulich.* **209**, 67, 88-F2 (1976)
- Radio Detection of Interstellar DCO⁺. *J. M. Hollis, L. E. Snyder, F. J. Lovas, and D. Buhl.* **209**, L83, 97-A1 (1976)
- HOLM, A. V. The Ultraviolet Variations of Iota Cassiopeiae. *M. R. Molnar, A. D. Mallama, A. V. Holm, and D. G. Soskey.* **209**, 146, 89-E2 (1976)
- HOLM, ALBERT V. Feige 24: A Very Hot White Dwarf. *Albert V. Holm.* **210**, L87, 111-D1 (1976)
- HOLT, S. S. New Results from Long-Term Observations of Cygnus X-1. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski.* **203**, L63, 8-C2 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. I. Search for Binary Periodicity. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski.* **205**, L27, 32-B12 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. II. Evidence for Flare-Dominated Intensity Variations. *S. S. Holt, E. A.*

- Boldt, P. J. Serlemitsos, and L. J. Kaluzienski. **205**, L79, 37-B9 (1976)
- Evidence for an 11.2 Day Periodicity from Cygnus X-2. S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski. **205**, L143, 42-C6 (1976)
- Iron Line Emission from a High-Temperature Plasma in Cassiopeia A. S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **206**, L41, 47-D2 (1976)
- Spectral Variability in the X-Ray Pulsar GX 1+4. R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **207**, L167, 72-C2 (1976)
- X-Ray Observations of the Vela Pulsar: Statistics and Spectrum. S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **208**, L67, 82-B6 (1976)
- Evidence for a 16.6 Day Period from Circinus X-1. L. J. Kaluzienski, S. S. Holt, E. A. Boldt, and P. J. Serlemitsos. **208**, L71, 82-B9 (1976)
- Variations in the Spectra and Pulse Period of GX 301-2. J. H. Swank, R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, and P. J. Serlemitsos. **209**, L57, 96-F4 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **209**, L65, 96-F12 (1976)
- HOUCK, J. R. 16-40 Micron Spectroscopy of the Trapezium and the Kleinmann-Low Nebula in Orion. W. J. Forrest, J. R. Houck, and R. A. Reed. **208**, L133, 87-A5 (1976)
- HOVESTADT, D. Anomaly in the Quiet-Time Helium Spectrum at 1 MeV per Nucleon. G. Gloeckler, D. Hovestadt, B. Klecker, O. Vollmer, and C. Y. Fan. **204**, 920, 26-A6 (1976)
- Ion and Electron Pulses Observed in the Magnetotail and Rapid Annihilation of Magnetic Field Lines. C. Y. Fan, G. Gloeckler, and D. Hovestadt. **209**, 259, 90-F8 (1976)
- A Direct Measurement of the Charge States of Energetic Iron Emitted by the Sun. G. Gloeckler, R. K. Sciambi, C. Y. Fan, and D. Hovestadt. **209**, L93, 97-A9 (1976)
- Time Dispersion of Energetic Solar Particles: Unexpected Velocity and Species Dependence. J. J. O'Gallagher, D. Hovestadt, B. Klecker, G. Gloeckler, and C. Y. Fan. **209**, L97, 97-A13 (1976)
- HOWARD, ROBERT. A Possible Variation of the Solar Rotation with the Activity Cycle. Robert Howard. **210**, L159, 115-D1 (1976)
- HOWARD, W. MICHAEL. On the Evolution of Massive Stars through the Core Carbon-burning Phase. Susan A. Lamb, Icko Iben, Jr., and W. Michael Howard. **207**, 209, 60-C4 (1976)
- HOYLE, F. Grains of Anomalous Isotopic Composition from Novae. D. D. Clayton and F. Hoyle. **203**, 490, 7-C4 (1976)
- HSIEH, S.-H. The Equations of Photohydrodynamics. S.-H. Hsieh and E. A. Spiegel. **207**, 244, 60-E12 (1976)
- HUANG, SU-SHU. An Elementary Theory of Eclipsing Depths of the Light Curve and Its Application to Beta Lyrae. Su-Shu Huang and Deborah A. Brown. **204**, 151, 14-F5 (1976)
- An Interpretation of Beta Lyrae. II. Disk Luminosity, Mass Ratio, and Nature of the Secondary Component. Su-Shu Huang and Deborah A. Brown. **208**, 780, 84-F6 (1976)
- HUBA, J. D. A Local Diffusion Process Associated with the Sweeping of Energetic Particles by Io. J. D. Huba and C. S. Wu. **203**, 268, 3-G10 (1976)
- HUBBARD, W. B. Statistical Mechanics of Light Elements at High Pressure. IV. A Model Free Energy for the Metallic Phase. H. E. DeWitt and W. B. Hubbard. **205**, 295, 31-B11 (1976)
- HUBER, M. C. E. Extreme-Ultraviolet Transients Observed at the Solar Pole. G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza. **203**, 528, 7-F5 (1976)
- HUCKLE, H. E. Periodic Modulation of Three Galactic X-Ray Sources. N. E. White, K. O. Mason, H. E. Huckle, P. A. Charles, and P. W. Sanford. **209**, L119, 101-E5 (1976)
- HUDSON, H. S. Solar Limb Brightening in Submillimeter Wavelengths. C. Lindsey and H. S. Hudson. **203**, 753, 11-B5 (1976)
- Submillimeter Observations of NGC 2024, OMC-2, and Mon R-2. H. S. Hudson and B. T. Soifer. **206**, 100, 44-A5 (1976)
- Far-Infrared Observations of IRC +10216. M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook. **208**, 396, 79-C1 (1976)
- Surface Photometry of the Spiral Galaxy IC 2233 and the Existence of Massive Halos. J. S. Gallagher and H. S. Hudson. **209**, 389, 93-F8 (1976)
- HUGHES, V. A. Recombination-Line Observations of W3 (OH). I. A Model for OH and H₂O Emission. V. A. Hughes and M. R. Viner. **204**, 55, 13-E9 (1976)
- A Dynamical Model for the Radio Outbursts of Cygnus X-3. A. W. Woodsworth and V. A. Hughes. **208**, 863, 85-E6 (1976)
- HULSE, R. A. Further Observations of the Binary Pulsar PSR 1913+16. J. H. Taylor, R. A. Hulse, L. A. Fowler, G. E. Gullahorn, and J. M. Rankin. **206**, L53, 47-E1 (1976)
- HUMMER, D. G. Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. II. Picket-Fence Models. Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer. **203**, 647, 10-A2 (1976)
- Resonance-Line Transfer with Partial Redistribution. VIII. Solution in the Comoving Frame for Moving Atmospheres. Dimitri Mihalas, R. A. Shine, P. B. Kunasz, and D. G. Hummer. **205**, 492, 35-A1 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. III. Effect of Aberration and Advection Terms. Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer. **206**, 515, 49-G5 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. IV. Frequency-dependent Source Functions for Scattering by Atoms and Electrons. Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer. **210**, 419, 108-D8 (1976)
- HUMPHREYS, ROBERTA M. Noncircular Motions in the Perseus Spiral Arm. Roberta M. Humphreys. **206**, 114, 44-B6 (1976)
- A Binary Model for the Infrared Source HD 101584. Roberta M. Humphreys. **206**, 122, 44-C1 (1976)
- HUNSTEAD, RICHARD. Spectrophotometric Observations of N Galaxies at Large Redshift: PKS 0353+027, 3C 99, 3C 467. Harding E. Smith, Hyron Spinrad, and Richard Hunstead. **206**, 345, 48-A4 (1976)
- PKS 0116+082 and 3C 330: Two Distant Cluster Radio Galaxies. Hyron Spinrad, James Liebert, Harding E. Smith, and Richard Hunstead. **206**, L79, 52-A6 (1976)
- HUNTLEY, J. M. Gas Response to Oval Distortions in Disk Galaxies. R. H. Sanders and J. M. Huntley. **209**, 53, 88-E4 (1976)
- HUNTRESS, W. T., JR. Laboratory Studies of Ion-Neutral Reactions in Interstellar Regions: Gas-Phase Equilibrium between HCN and NH₃ in Dense Clouds. W. T. Huntress, Jr. and V. G. Anicich. **208**, 237, 76-E1 (1976)
- HUNTRESS, WESLEY T., JR. Measurement and Significance of the Reaction $^{13}\text{C}^+ + ^{12}\text{CO} \rightleftharpoons ^{12}\text{C}^+ + ^{13}\text{CO}$ for Alteration of the $^{13}\text{C}/^{12}\text{C}$ Ratio in Interstellar Molecules. William D. Watson, Vincent G. Anicich, and Wesley T. Huntress, Jr.. **205**, L165, 42-D11 (1976)
- HUTCHINGS, J. B. Stellar Winds from Hot Supergiants. J. B. Hutchings. **203**, 438, 6-E13 (1976)
- Copernicus Ultraviolet Spectra of OB Supergiants with Strong Stellar Winds. J. B. Hutchings. **204**, L99, 22-C13 (1976)
- HD 47129: The Most Massive Binary. J. B. Hutchings and A. P. Cowley. **206**, 490, 49-E7 (1976)
- The Ultraviolet Spectrum of Beta Lyrae. II. M. Hack, J. B.

- Hutchings, Y. Kondo, G. E. McCluskey, and M. K. Tulloch. **206**, 777, 54-A11 (1976)
- Spectroscopic Analysis of Scorpius X-1. David Crampton, Anne P. Cowley, J. B. Hutchings, and C. Kaat. **207**, 907, 70-C10 (1976)
- HUTCHINS, JOHN. Relationship between Radial Velocity and Light Variations in HR 7331 and Other Delta Scuti Stars. Michel Breger, John Hutchins, and Leonard V. Kuhi. **210**, 163, 104-G3 (1976)
- HUTCHINS, JOHN B. The Thermal Effects of H₂ Molecules in Rotating and Collapsing Spheroidal Gas Clouds. John B. Hutchins. **205**, 103, 29-B2 (1976)
- HUTTON, L. K. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. E. Rönäng, O. E. H. Rydbeck, and A. E. Niell. **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr. **206**, 107, 52-C12 (1976)
- Niell. **206**, L75, 52-A2 (1976)
- HYLAND, A. R. Infrared Observations and the Structure of the Lower Main Sequence. J. R. Mould and A. R. Hyland. **208**, 399, 79-C4 (1976)
- The Age and Chemical Composition of the LMC Cluster NGC 2209. S. C. B. Gascoigne, John Norris, M. S. Bessell, A. R. Hyland, and N. Visvanathan. **209**, L25, 92-B11 (1976)
- IANNA, PHILIP A. Space Velocity of the Nearby Subdwarf M Star AC +54°1646-56. Philip A. Ianna and Roger B. Culver. **203**, L137, 11-F4 (1976)
- IBEN, ICKO, JR. Solar Oscillations as a Guide to Solar Structure. Icko Iben, Jr. **204**, L147, 27-C11 (1976)
- On the Evolution of Massive Stars through the Core Carbon-burning Phase. Susan A. Lamb, Icko Iben, Jr., and W. Michael Howard. **207**, 209, 60-C4 (1976)
- Further Adventures of a Thermally Pulsing Star. Icko Iben, Jr. **208**, 165, 75-F11 (1976)
- On the Sun's Acoustical Spectrum. Icko Iben, Jr. and John Mahaffy. **209**, L39, 92-C11 (1976)
- ICHIMARU, SETSUO. Magnetohydrodynamic Turbulence in Disk Plasmas and Magnetic Field Fluctuations in the Galaxy. Setsuo Ichimaru. **208**, 701, 83-G1 (1976)
- ILLINGWORTH, GARTH. The Masses of Globular Clusters. II. Velocity Dispersions and Mass-to-Light Ratios. Garth Illingworth. **204**, 73, 13-F13 (1976)
- The Masses of Globular Clusters. I. Surface Brightness Distributions and Star Counts. Garth Illingworth and Wendy Illingworth. **30**, 227, 5-A2 (1976) (Abstr. in **204**, 312, 16-D9)
- ILLINGWORTH, WENDY. The Masses of Globular Clusters. I. Surface Brightness Distributions and Star Counts. Garth Illingworth and Wendy Illingworth. **30**, 227, 5-A2 (1976) (Abstr. in **204**, 312, 16-D9)
- IMHOFF, CATHERINE L. The Luminosity of the Very Red Supergiant near the Cluster TR 27. Catherine L. Imhoff and Philip C. Keenan. **205**, 455, 34-E6 (1976)
- INGHAM, W. H. On the Origin of Continuum Polarization in White Dwarfs. W. H. Ingham, K. Brecher, and I. Wasserman. **207**, 518, 65-A1 (1976)
- Infrared Emission from A0620-00. S. G. Kleinmann, K. Brecher, and W. H. Ingham. **207**, 532, 65-B1 (1976)
- IP, W.-H. Cosmic-Ray Gradients from Pioneer-10 and Pioneer-11. W. I. Axford, W. Fillius, L. J. Gleeson, and W.-H. Ip. **210**, 603, 110-D9 (1976)
- IPSER, JAMES R. On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. I. The Numerical Method for Computing Structure and Its Application to Uniformly Rotating Homogeneous Bodies. E. Manning Butterworth and James R. Ipsier. **204**, 200, 15-C1 (1976)
- IRVINE, W. M. Radio Observations of Interstellar CH. I. O. E. H. Rydbeck, E. Kollberg, A. Hjalmarson, A. Sume, J. Elldér, and W. M. Irvine. **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- IRVINE, WILLIAM M. Azimuthal Brightness Variations in Saturn's Rings. Kari Lumme and William M. Irvine. **204**, L55, 17-E3 (1976)
- ISHIMARU, AKIRA. Structure of Density Fluctuations near the Sun Deduced from Pioneer-6 Spectral Broadening Measurements. Richard Woo, Fang-Chou Yang, and Akira Ishimaru. **210**, 593, 110-C13 (1976)
- ITO, NAOKI. Transport Properties of Dense Matter. Elliott Flowers and Naoki Itoh. **206**, 281, 45-C4 (1976)
- IVES, J. C. The Variability and Absorption of the X-Ray Emission from NGC 4151. J. C. Ives, P. W. Sanford, and M. V. Penston. **207**, L159, 72-B9 (1976)
- IYENGAR, K. V. K. Energy Balance of the Infrared Radiation in Planetary Nebulae. K. V. K. Iyengar and K. S. Krishna Swamy. **210**, 518, 109-D13 (1976)
- JACKSON, E. ATLEE. A New Pulsar Atmospheric Model. I. Aligned Magnetic and Rotational Axes. E. Atlee Jackson. **206**, 831, 54-E10 (1976)
- JACKSON, ROBERT E. Velocity Dispersions and Mass-to-Light Ratios for Elliptical Galaxies. S. M. Faber and Robert E. Jackson. **204**, 668, 28-C13 (1976)
- JACOBSEN, THEODOR S. High-Velocity Gas in Supernova Remnants. III. The Monoceros Loop. George Wallerstein and Theodor S. Jacobsen. **207**, 53, 58-E3 (1976)
- JACOBSON, MICHAEL R. Neutral Hydrogen in the W41 Region. Courtney P. Gordon, Kurtiss J. Jordon, and Michael R. Jacobson. **203**, 593, 9-C13 (1976)
- JAFFE, D. T. Extreme-Ultraviolet Transients Observed at the Solar Pole. G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza. **203**, 528, 7-F5 (1976)
- JALUFKA, N. W. Investigation of Forbidden Transitions in Argon Ions. N. W. Jalufka. **203**, 279, 4-A7 (1976)
- JANJIC, J. D. Rotational Analysis of the First Negative System of ¹²C¹⁸O⁺. J. D. Janjić and D. S. Pesić. **209**, 642, 96-D3 (1976)
- JAUNCEY, DAVID L. Observations of High-Redshift QSOs from a Molonglo Faint Source Survey. Jack A. Baldwin, Harding E. Smith, E. Margaret Burbidge, Cyril Hazard, Hugh S. Murdoch, and David L. Jauncey. **206**, L83, 52-A13 (1976)
- Redshifts of Southern Radio Sources. Bruce A. Peterson, David L. Jauncey, Alan E. Wright, and James J. Condon. **207**, L5, 62-A6 (1976)
- JEFFERYS, WILLIAM H. A Dynamical Study of NGC 4027. John H. Christiansen and William H. Jefferys. **205**, 52, 28-E2 (1976)
- JENKINS, E. B. Lyman-Alpha Observations of Comet Kohoutek 1973 XII with Copernicus. J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller. **209**, 302, 91-B10 (1976)
- JENKINS, EDWARD B. Interaction of the Vela Supernova Remnant with the Cloudy Interstellar Medium. Edward B. Jenkins, Joseph Silk, and George Wallerstein. **209**, L87, 97-A4 (1976)
- Ultraviolet Absorption Lines Associated with the Vela Supernova Remnant. Edward B. Jenkins, Joseph Silk, and George Wallerstein. **32**, 681, 43-C1 (1976) (Abstr. in **210**, 621, 110-E14)
- JENNER, DAVID C. Planetary Nebulae in Local Group Galaxies. III. Radial Velocity Observations of H II Regions in the M32 Field. Holland C. Ford and David C. Jenner. **208**, 683, 83-E10 (1976)
- JENSEN, E. B. Density Waves in the Disks of Two Spiral Galaxies. S. E. Strom, E. B. Jensen, and K. M. Strom. **206**,

- L11, 47-A10 (1976)
- TV Spectroscopy of Absorption Lines in the Far-Red of PHL 957. *G. R. Gilbert, J. R. P. Angel, S. A. Grandi, G. D. Coleman, P. A. Strittmatter, R. H. Cromwell, and E. B. Jensen.* **206**, L129, 56-C12 (1976)
- Composition Gradients in Spiral Galaxies: A Consistency Check on the Density-Wave Theory. *E. B. Jensen, K. M. Strom, and S. E. Strom.* **209**, 748, 99-A1 (1976)
- JERNIGAN, G. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Doxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaille, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper.* **203**, L9 4-C12 (1976)
- Optical Identification of A0620-00. *F. Boley, R. Wolfson, H. Bradt, R. Doxsey, G. Jernigan, and W. A. Hiltner.* **203**, L13, 4-D2 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper.* **204**, L67, 22-A10 (1976)
- On the Ultrasoft X-Ray Background. *A. Levine, S. Rappaport, R. Doxsey, and G. Jernigan.* **205**, 226, 30-D10 (1976)
- Detection of X-Rays from Algol (β Persei). *H. W. Schnopper, J. P. Delvaille, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Doxsey.* **210**, L75, 111-C1 (1976)
- JERNIGAN, GARRETT. Discovery of X-Ray Bursts from MXB 1728-34. *Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li.* **210**, L13, 106-B11 (1976)
- JERNIGAN, J. G. The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson.* **207**, L95, 67-B12 (1976)
- Evidence for the Binary Nature of A0535+26. *S. Rappaport, P. C. Joss, H. Bradt, G. W. Clark, and J. G. Jernigan.* **208**, L119, 86-G3 (1976)
- The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. *T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod.* **210**, L127, 115-A12 (1976)
- JOHNS, M. The Polarization of BL Lacertae at Visible and Infrared Wavelengths. *R. F. Knacke, R. W. Capps, and M. Johns.* **210**, L69, 111-B8 (1976)
- JOHNS, OLIVER. The Long-Lived Radioisotopes as Monitors of Stellar, Galactic, and Cosmological Phenomena. *Hubert Reeves and Oliver Johns.* **206**, 958, 56-A7 (1976)
- JOHNSON, D. R. Observation of the 616-515 Transitions of Acetaldehyde in Sagittarius B2. *W. Gilmore, M. Morris, D. R. Johnson, F. J. Lovas, B. Zuckerman, B. E. Turner, and P. Palmer.* **204**, 43, 13-D10 (1976)
- Detection of Interstellar Vibrationally Excited Cyanoacetylene. *F. O. Clark, R. D. Brown, P. D. Godfrey, J. W. V. Storey, and D. R. Johnson.* **210**, L139, 115-B9 (1976)
- JOHNSON, DONALD R. Laboratory Microwave Spectrum of Cyanamide. *Donald R. Johnson, Richard D. Suenram, and Walter J. Lafferty.* **208**, 245, 76-E9 (1976)
- Millimeter Emission Lines in Orion A. *Frank J. Lovas, Donald R. Johnson, David Buhl, and Lewis E. Snyder.* **209**, 770, 99-B6 (1976)
- JOHNSON, H. R. A Statistical Method for Treating Molecular Line Opacities. *C. Sneden, H. R. Johnson, and B. M. Krupp.* **204**, 281, 16-B5 (1976)
- JOHNSON, HOLLIS R. Treatment of Atomic and Molecular Line Blanketing by Opacity Sampling. *Hollis R. Johnson and Brian M. Krupp.* **206**, 201, 45-B1 (1976)
- JOHNSON, HUGH M. Fabry-Perot Observations of Peculiar Hydrogen-Emission Nebulae. *Hugh M. Johnson.* **206**, 243, 45-E1 (1976)
- Spectra and Fabry-Perot Interferometry of AG Carinae and the Nebula. *Hugh M. Johnson.* **206**, 469, 49-C12 (1976)
- Kinematics and Spectra of Planetary Nebulae with O iv-Sequence Nuclei. *Hugh M. Johnson.* **208**, 127, 75-D1 (1976)
- Radio Sources in the Field of Globular Clusters. *Hugh M. Johnson.* **208**, 706, 83-G6 (1976)
- JOHNSON, KEITH. Four-Point Optical Energy Distributions for Faint BL Lacertae Objects. *S. Tapia, E. R. Craine, and Keith Johnson.* **203**, 291, 5-A10 (1976)
- JOHNSON, M. A. Heterodyne Detection of CO₂ Emission Lines and Wind Velocities in the Atmosphere of Venus. *A. L. Betz, M. A. Johnson, R. A. McLaren, and E. C. Sutton.* **208**, L141, 87-B4 (1976)
- Nonthermal 10 Micron CO₂ Emission Lines in the Atmospheres of Mars and Venus. *M. A. Johnson, A. L. Betz, R. A. McLaren, E. C. Sutton, and C. H. Townes.* **208**, L145, 87-B8 (1976)
- JOHNSTON, K. J. 6 Centimeter Observations of Radio Galaxies over a 228 Kilometer Baseline. *R. C. Walker, K. Y. Lo, B. F. Burke, K. J. Johnston, and J. M. Moran.* **208**, 296, 78-B10 (1976)
- 3C 286: A Cosmological QSO? *A. M. Wolfe, J. J. Broderick, J. J. Condon, and K. J. Johnston.* **208**, L47, 82-A2 (1976)
- JOKIPII, J. R. The Irregularity Spectrum in Interstellar Space. *L. C. Lee and J. R. Jokipii.* **206**, 735, 53-E11 (1976)
- On the Physical Interpretation of the Cosmic-Ray Transport Equations. *J. R. Jokipii and E. N. Parker.* **208**, 220, 76-C11 (1976)
- Consequences of a Lifetime Greater than 10⁷ Years for Galactic Cosmic Rays. *J. R. Jokipii.* **208**, 900, 86-A1 (1976)
- JONES, BERNARD J. T. On the Use of Correlation Functions in Finding Physical Associations of Galaxies. *S. Michael Fall, Margaret J. Geller, Bernard J. T. Jones, and Simon D. M. White.* **205**, L121, 42-B1 (1976)
- JONES, C. Uhuru Observations of the Galactic Plane in 1970, 1971, and 1972. *W. Forman, C. Jones, and H. Tananbaum.* **206**, L29, 47-C3 (1976)
- Uhuru Observations of a Transient X-Ray Source Associated with the Globular Cluster NGC 6440. *W. Forman, C. Jones, and H. Tananbaum.* **207**, L25, 62-C6 (1976)
- Uhuru Observations of an X-Ray Burst at High Galactic Latitude Centered on the X-Ray Globular Cluster NGC 1851. *W. Forman and C. Jones.* **207**, L177, 72-C11 (1976)
- Survey of Intensity Variability of Strong Galactic X-Ray Sources from Uhuru. *W. Forman, C. Jones, and H. Tananbaum.* **208**, 849, 85-D5 (1976)
- Uhuru Observations of 4U 1608-52: The "Steady" X-Ray Source Associated with the X-Ray Burst Source Norma. *H. Tananbaum, Lola J. Chaisson, W. Forman, C. Jones, and T. A. Matilsky.* **209**, L125, 101-E13 (1976)
- Uhuru Observations of Hercules X-1 during the Low State of the 35-Day Cycle. *C. Jones and W. Forman.* **209**, L131, 101-F6 (1976)
- Uhuru and Ariel V Observations of 3U 1630-47: A Recurrent Transient X-Ray Source. *C. Jones, W. Forman, H. Tananbaum, and M. J. L. Turner.* **210**, L9, 106-B8 (1976)
- JONES, P. B. Pulsar Magnetic Alignment: The Critical Period and Integrated Pulse Width. *P. B. Jones.* **209**, 602, 96-A1 (1976)
- JONES, T. W. An X-Ray Survey of BL Lacertae Objects. *Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidson, Keith O. Mason, and Peter W. Sanford.* **207**, 359, 63-B6 (1976)
- Model Dust Envelopes around Late-Type Stars. *T. W. Jones and K. M. Merrill.* **209**, 509, 95-A1 (1976)
- The Detection of Radio Emission from the RS CVn Binary HR 1099. *Frazer N. Owen, T. W. Jones, and D. M. Gibson.* **210**, L27, 106-C10 (1976)
- JORDAN, CAROLE. Plasma Diagnostic Techniques in the

- Ultraviolet: The C III Density-Sensitive Lines in the Sun. *A. K. Dupree, P. V. Foukal, and Carole Jordan*. **209**, 621, 96-B9 (1976)
- Joss, P. C. Is the Local Supercluster a Physical Association? *J. N. Bahcall and P. C. Joss*. **203**, 23, 1-B11 (1976)
- X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Duxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaille, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper*. **203**, L9, 4-C12 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Duxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper*. **204**, L67, 22-A10 (1976)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. *J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini*. **206**, L99, 52-C4 (1976)
- The 3U 0900-40 Binary System: Orbital Elements and Masses. *S. Rappaport, P. C. Joss, and J. E. McClintock*. **206**, L103, 52-C8 (1976)
- Evidence for the Binary Nature of A0535+26. *S. Rappaport, P. C. Joss, H. Bradt, G. W. Clark, and J. G. Jernigan*. **208**, L119, 86-G3 (1976)
- Orbital Elements and Masses for the SMC X-1/Sanduleak 160 Binary System. *F. Primini, S. Rappaport, P. C. Joss, G. W. Clark, W. Lewin, F. Li, W. Mayer, and J. McClintock*. **210**, L71, 111-B10 (1976)
- The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. *T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod*. **210**, L127, 115-A12 (1976)
- JOYCE, GLENN. Formation of the 0.511 MeV line in Solar Flares. *Carol Jo Crannell, Glenn Joyce, Reuven Ramaty, and Carl Wertz*. **210**, 582, 110-C2 (1976)
- JOYCE, R. R. Additional Observations of the Unidentified Infrared Features at 3.28 and 3.4 Microns. *G. L. Grasdale and R. R. Joyce*. **205**, L11, 32-A12 (1976)
- 3 Millimeter and 350 Micron Continuum Observations of the DR-21 and Sagittarius B2 Regions. *G. Righini, M. Simon, and R. R. Joyce*. **207**, 119, 59-C7 (1976)
- Infrared Observations of NGC 5128. *G. L. Grasdale and R. R. Joyce*. **208**, 317, 78-D3 (1976)
- JURA, M. Photoelectric Heating of the Interstellar Gas. *M. Jura*. **204**, 12, 13-B5 (1976)
- Calcium Abundance Variations in Diffuse Interstellar Clouds. *M. Jura*. **206**, 691, 53-B8 (1976)
- Observations of CO Emission from Diffuse Interstellar Clouds. *G. R. Knapp and M. Jura*. **209**, 782, 99-C5 (1976)
- KAAT, C. Spectroscopic Analysis of Scorpius X-1. *David Crampton, Anne P. Cowley, J. B. Hutchings, and C. Kaat*. **207**, 907, 70-C10 (1976)
- KAKAR, R. K. Carbon Recombination Line Observations of the Sharpless 140 Region. *G. R. Knapp, Robert L. Brown, T. B. H. Kuiper, and R. K. Kakar*. **204**, 781, 24-E5 (1976)
- KALER, J. B. The Peculiar Object He 2-467. *J. H. Lutz, T. E. Lutz, J. B. Kaler, D. E. Osterbrock, and S. A. Gregory*. **203**, 481, 7-B9 (1976)
- A Spectrographic Survey of 21 Planetary Nebulae. *J. B. Kaler, L. H. Aller, and S. J. Czyzak*. **203**, 636, 9-G1 (1976)
- The Spectrum of NGC 7027. *J. B. Kaler, L. H. Aller, S. J. Czyzak, and H. W. Epps*. **31**, 163, 14-A2 (1976) (Abstr. in **206**, 343, 46-E11)
- KALER, JAMES B. Photoelectric Filter Photometry of Planetary Nebulae. *James B. Kaler*. **210**, 113, 104-C6 (1976)
- The Exciting Stars of Low-Excitation Planetary and Diffuse Nebulae. *James B. Kaler*. **210**, 843, 114-D1 (1976)
- A Catalog of Relative Emission Line Intensities Observed in Planetary and Diffuse Nebulae. *James B. Kaler*. **31**, 517, 20-A2 (1976) (Abstr. in **207**, 684, 66-E14)
- KALKOFEN, WOLFGANG. Radiative Shock Dynamics. I. The Lyman Continuum. *Richard I. Klein, Robert F. Stein, and Wolfgang Kalkofen*. **205**, 499, 35-A8 (1976)
- KALNAJS, AGRIS J. Dynamics of Flat Galaxies. II. Biorthonormal Surface Density-Potential Pairs for Finite Disks. *Agris J. Kalnajs*. **205**, 745, 38-G11 (1976)
- Dynamics of Flat Galaxies. III. Equilibrium Models. *Agris J. Kalnajs*. **205**, 751, 39-A3 (1976)
- KALUZIENSKI, L. J. New Results from Long-Term Observations of Cygnus X-1. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski*. **203**, L63, 8-C2 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. I. Search for Binary Periodicity. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski*. **205**, L27, 32-B12 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. II. Evidence for Flare-Dominated Intensity Variations. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski*. **205**, L79, 37-B9 (1976)
- Evidence for an 11.2 Day Periodicity from Cygnus X-2. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski*. **205**, L143, 42-C6 (1976)
- Evidence for a 16.6 Day Period from Circinus X-1. *L. J. Kaluzienski, S. S. Holt, E. A. Boldt, and P. J. Serlemitsos*. **208**, L71, 82-B9 (1976)
- KAMPER, KARL. Optical Studies of Cassiopeia A. V. A Definitive Study of Proper Motion. *Karl Kamper and Sydney van den Bergh*. **32**, 351, 38-D1 (1976) (Abstr. in **208**, 955, 86-E4)
- KANE, S. R. Characteristics of Cosmic X-Ray Bursts Observed with the OGO-5 Satellite. *S. R. Kane and K. A. Anderson*. **210**, 875, 114-F6 (1976)
- KANTOWSKI, R. Multiple Image Probabilities for a Spheroidal Gravitational Lens. *R. R. Bourassa and R. Kantowski*. **205**, 674, 38-B5 (1976)
- KARP, ALAN H. Mass Loss and Asymmetries in the Lines of Iota Coronae Borealis. *Alan H. Karp*. **205**, L93, 37-C7 (1976)
- Redshift Doublets in QSO Absorption Spectra. *Alan H. Karp*. **210**, 279, 107-A4 (1976)
- KATO, TAKAKO. Radiation from a Hot, Thin Plasma from 1 to 250 Å. *Takako Kato*. **30**, 397, 8-A2 (1976) (Abstr. in **205**, 309, 31-C11)
- KATZ, J. I. Hydrogen and Helium Lines in Theoretical Models of Scorpius X-1 and Cygnus X-2. *Mordehai Milgrom and J. I. Katz*. **205**, 545, 35-D12 (1976)
- Nonrelativistic Compton Scattering and Models of Quasars. *J. I. Katz*. **206**, 910, 55-D13 (1976)
- The Origin of X-Ray Sources in Clusters of Galaxies. *J. I. Katz*. **207**, 25, 58-C3 (1976)
- KEENAN, PHILIP C. The Luminosity of the Very Red Supergiant near the Cluster TR 27. *Catherine L. Imhoff and Philip C. Keenan*. **205**, 455, 34-E6 (1976)
- KELCH, WALTER L. Sodium Line Formation in Arcturus. II. The Use of Empirical and Opacity Sampling Models and the Nature of Partial Redistribution Effects. *Walter L. Kelch and Robert W. Milkey*. **208**, 428, 79-E12 (1976)
- KELLER, H. U. Lyman-Alpha Observations of Comet Kohoutek 1973 XII with Copernicus. *J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller*. **209**, 302, 91-B10 (1976)
- KELLERMANN, K. I. Rapid Increase in the Size of 3C 345. *M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart*. **206**, L1, 47-A2 (1976)
- Observations of a Radio Source in the Nucleus of M81 with Dimensions Less than 1300 Astronomical Units 12:50 11/05/76. *K. I. Kellermann, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, and A. Witzel*. **210**, L121, 115-A6 (1976)

- KEMP, JAMES C. Nova Cygni 1975: Narrow-Band Polarimetry and Photometry 0.36–1.7 Microns. *James C. Kemp and Richard J. Rudy*. **203**, L131, 11-E13 (1976)
- AO Cassiopeiae: Phase-locked Polarization and the Geometry of the Gas Stream. *Richard J. Rudy and James C. Kemp*. **207**, L125, 67-D13 (1976)
- Polarized Radiation in Magnetic White Dwarfs. *Leonard A. Rosi, Robert L. Zimmerman, and James C. Kemp*. **209**, 868, 100-B11 (1976)
- The Variable Linear Polarization of Cygnus X-1, 1974–1975 Observations. *James C. Kemp, Robert G. Southwick, and Richard J. Rudy*. **210**, 239, 105-E10 (1976)
- KENDALL, WILLIAM B. Measurements of Large-Scale Density Fluctuations in the Solar Wind Using Dual-Frequency Phase Scintillations. *Richard Woo, Fang-Chou Yang, Kabing W. Yip, and William B. Kendall*. **210**, 568, 110-A8 (1976)
- KENDZIORRA, E. The 4.8 Hour Variation of Cygnus X-3 at High X-Ray Energies. *W. Pietsch, E. Kendziorra, R. Staubert, and J. Trümper*. **203**, L67, 8-C6 (1976)
- KENNICUTT, R. C. H II Regions in NGC 628. II. Analysis of the Spatial Distribution. *R. C. Kennicutt and P. W. Hodge*. **207**, 36, 58-D1 (1976)
- KESTENBAUM, H. L. New Observations of Pulsed X-Ray Emission from NP 0532. *H. L. Kestenbaum, W. Ku, R. Novick, and R. S. Wolff*. **203**, L57, 8-B11 (1976)
- Energy Dependence of the Size of the X-Ray Source in the Crab Nebulae. *W. Ku, H. L. Kestenbaum, R. Novick, and R. S. Wolff*. **204**, L77, 22-B5 (1976)
- Search for X-Ray Line Emission from A0620–00. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **208**, L27, 77-B13 (1976)
- Measurement of the X-Ray Polarization of the Crab Nebula. *M. C. Weisskopf, G. G. Cohen, H. L. Kestenbaum, K. S. Long, R. Novick, and R. S. Wolff*. **208**, L125, 86-G8 (1976)
- The Graphite Crystal X-Ray Spectrometer on OSO-8. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **210**, 805, 114-A2 (1976)
- KIMMER, EDWARD. Physical Conditions in a Hydrogen Gas Heated by Suprathermal Protons. *Edward Kimmer*. **203**, 674, 10-C1 (1976)
- KINAHAN, BLAKE F. On the Power Spectrum of the Solar Granulation at High Wavenumbers. *Blake F. Kinahan*. **209**, 282, 91-A4 (1976)
- KINMAN, T. D. Photoelectric Magnitudes and Polarization Data for Possible BL Lacertae Objects. *T. D. Kinman*. **205**, 1, 28-A4 (1976)
- KIRSHNER, ROBERT P. Observations of Supernovae: 1975a in NGC 2207 and 1975b in the Perseus Cluster. *Robert P. Kirshner, H. C. Arp, and J. R. Dunlap*. **207**, 44, 58-D9 (1976)
- High-Velocity Gas in the Cygnus Loop. *Robert P. Kirshner and Keith Taylor*. **208**, L83, 82-C7 (1976)
- KLECKER, B. Anomaly in the Quiet-Time Helium Spectrum at 1 MeV per Nucleon. *G. Gloeckler, D. Hovestadt, B. Klecker, O. Vollmer, and C. Y. Fan*. **204**, 920, 26-A6 (1976)
- Time Dispersion of Energetic Solar Particles: Unexpected Velocity and Species Dependence. *J. J. O'Gallagher, D. Hovestadt, B. Klecker, G. Gloeckler, and C. Y. Fan*. **209**, L97, 97-A13 (1976)
- KLEIN, MICHAEL. The Problem of Spiral Galaxies and Satellite Radio Sources. *Halton Arp, Roland Carpenter, Samuel Gulkis, and Michael Klein*. **205**, 721, 38-E12 (1976)
- KLEIN, RICHARD I. Radiative Shock Dynamics. I. The Lyman Continuum. *Richard I. Klein, Robert F. Stein, and Wolfgang Kalkofen*. **205**, 499, 35-A8 (1976)
- KLEINMANN, D. E. 8–13 Micon Spectrophotometry of NGC 1068. *D. E. Kleinmann, F. C. Gillett, and E. L. Wright*. **208**, 42, 74-D6 (1976)
- The Infrared Source near the Rapid-Burst X-Ray Source MXB 1730–335. *D. E. Kleinmann, S. G. Kleinmann, and E. L. Wright*. **210**, L83, 111-C10 (1976)
- KLEINMANN, S. G. An Observational Study of the AFCRL Infrared Sky Survey. II. Present Results of a New Program to Study the Final Catalog. *M. J. Lebofsky, S. G. Kleinmann, G. H. Rieke, and F. J. Low*. **206**, L157, 56-E11 (1976)
- Infrared Emission from A0620–00. *S. G. Kleinmann, K. Brecher, and W. H. Ingham*. **207**, 532, 65-B1 (1976)
- The Infrared Source near the Rapid-Burst X-Ray Source MXB 1730–335. *D. E. Kleinmann, S. G. Kleinmann, and E. L. Wright*. **210**, L83, 111-C10 (1976)
- KLEMPERER, WILLIAM. Interstellar COH⁺. *Eric Herbst, Joseph M. Norbeck, Phillip R. Certain, and William Klemperer*. **207**, 110, 59-B11 (1976)
- KNACKE, R. F. Ethane and Acetylene Abundances in the Jovian Atmosphere. *A. Tokunaga, R. F. Knacke, and T. Owen*. **209**, 294, 91-B2 (1976)
- Infrared Polarization of the Galactic Center. *R. W. Capps and R. F. Knacke*. **210**, 76, 103-G10 (1976)
- The Polarization of BL Lacertae at Visible and Infrared Wavelengths. *R. F. Knacke, R. W. Capps, and M. Johns*. **210**, L69, 111-B8 (1976)
- KNAPP, G. R. OH and H₂O Masers in the Monoceros-R2 Molecular Cloud. *G. R. Knapp and R. L. Brown*. **204**, 21, 13-C1 (1976)
- CO Observations of the Expanding Envelope of IRC + 10216. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and Robert L. Brown*. **204**, 408, 19-A1 (1976)
- Detection of H₂O Maser Emission from Four Infrared Sources. *Mark Morris and G. R. Knapp*. **204**, 415, 19-A8 (1976)
- Carbon Recombination Line Observations of the Sharpless 140 Region. *G. R. Knapp, Robert L. Brown, T. B. H. Kuiper, and R. K. Kakar*. **204**, 781, 24-E5 (1976)
- Observations of Heavy-Element Recombination Lines in the Rho Ophiuchi Dark Cloud at 13 Centimeter Wavelength. *G. R. Knapp, T. B. H. Kuiper, and Robert L. Brown*. **206**, 109, 44-B1 (1976)
- CO Observations of NGC 1579 (S222) and S239. *G. R. Knapp, T. B. H. Kuiper, S. L. Knapp, and Robert L. Brown*. **206**, 443, 49-A13 (1976)
- H₂O Maser Emission Associated with T Tauri and Other Regions of Star Formation. *G. R. Knapp and Mark Morris*. **206**, 713, 53-D2 (1976)
- CO Observations of the Expanding Envelope of IRC + 10216: Erratum. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and R. L. Brown*. **207**, 341, 61-E13 (1976) (Orig. paper in **204**, 408, 19-A1)
- Observations of CO Emission from Diffuse Interstellar Clouds. *G. R. Knapp and M. Jura*. **209**, 782, 99-C5 (1976)
- KNAPP, S. L. CO Observations of the Expanding Envelope of IRC + 10216. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and Robert L. Brown*. **204**, 408, 19-A1 (1976)
- CO Observations of NGC 1579 (S222) and S239. *G. R. Knapp, T. B. H. Kuiper, S. L. Knapp, and Robert L. Brown*. **206**, 443, 49-A13 (1976)
- CO Observations of the Expanding Envelope of IRC + 10216: Erratum. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and R. L. Brown*. **207**, 341, 61-E13 (1976) (Orig. paper in **204**, 408, 19-A1)
- KNEER, F. Formation of Spectral Lines with Partial Frequency Redistribution. *J. N. Heasley and F. Kneer*. **203**, 660, 10-B2 (1976)
- KNIFFEN, D. A. Significance of Medium-Energy Gamma-Ray Astronomy in the Study of Cosmic Rays. *C. E. Fichtel, D. A. Kniffen, D. J. Thompson, G. F. Bignami, and C. Y. Cheung*. **208**, 211, 76-C2 (1976)
- A Search of the SAS-2 Data for Pulsed Gamma-Ray Emission from Radio Pulsars. *H. Ögelman, C. E. Fichtel, D. A. Kniffen, and D. J. Thompson*. **209**, 584, 95-F9 (1976)
- KNIGHT, C. A. Apparent "Superrelativistic" Expansion of the

- Extragalactic Radio Source 3C 345. *J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Ronnang, O. E. H. Rydbeck, and A. E. Niell.* **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. *T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr.* **206**, L107, 52-C12 (1976)
- KNIGHT, J. W. The Distribution of Redshifts of Quasars and Related Objects. *J. W. Knight, P. A. Sturrock, and P. Switzer.* **203**, 286, 5-A5 (1976)
- KNOBLOCH, EDGAR. Tidal Disruption of Clusters. *Edgar Knobloch.* **209**, 411, 94-A2 (1976)
- KOCH, ROBERT H. The Linear Polarization of BY Draconis. *Robert H. Koch and Raymond J. Pfeiffer.* **204**, L47, 17-D6 (1976)
- KOHL, J. L. The Mg II *h* and *k* Lines. I. Absolute Center and Limb Measurements of the Solar Profiles. *J. L. Kohl and W. H. Parkinson.* **205**, 599, 36-A10 (1976)
- KOJOIAN, GABRIEL. The Radio Spectra of Markarian Galaxies. *Gabriel Kojoian, Richard A. Sramek, Dale F. Dickinson, H. Tovmassian, and C. R. Purton.* **203**, 323, 5-D1 (1976)
- KOLB, EDWARD W. Neutrino Pair Bremsstrahlung Including Neutral Current Effects. *Duane A. Dicus, Edward W. Kolb, David N. Schramm, and David L. Tubbs.* **210**, 481, 109-B3 (1976)
- KOLLBERG, E. Radio Observations of Interstellar CH. I. *O. E. H. Rydbeck, E. Kollberg, A. Hjalmarsen, A. Sume, J. Eldér, and W. M. Irvine.* **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- KONDO, Y. Skylab Ultraviolet Stellar Spectra: Cool Stars with Hot Secondaries. *S. B. Parsons, J. D. Wray, Y. Kondo, K. G. Henize, and G. F. Benedict.* **203**, 435, 6-E9 (1976)
- The Ultraviolet Spectrum of Beta Lyrae. II. *M. Hack, J. B. Hutchings, Y. Kondo, G. E. McCluskey, and M. K. Tulloch.* **206**, 777, 54-A11 (1976)
- The Behavior of the Mg II Doublet Emissions near 2800 Å Observed in Late-Type Giants. *Y. Kondo, T. H. Morgan, and J. L. Modisette.* **207**, 167, 59-G2 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. *Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey.* **208**, 468, 80-A9 (1976)
- The Behavior of the Mg II Doublet Features near 2800 Å Observed in F, A, and B Supergiants. *Y. Kondo, T. H. Morgan, and J. L. Modisette.* **209**, 489, 94-F6 (1976)
- KONDO, YOJI. Possible Mg II Emission in B Stars Observed from Copernicus. *Yoji Kondo, Jerry L. Modisette, Reginald J. Dufour, and Ray S. Whaley.* **206**, 163, 44-F4 (1976)
- Mass Flow in the O7f Binary UW Canis Majoris. II. *George E. McCluskey, Jr. and Yoji Kondo.* **208**, 760, 84-D7 (1976)
- Mass Flow in the O7f Binary UW Canis Majoris. II.: Addendum. *George E. McCluskey, Jr. and Yoji Kondo.* **210**, 277, 106-A9 (1976) (Orig. paper in **208**, 760, 84-D7)
- Absolute Flux Calibration for the Mg II Observations near 2800 Angstroms. *Yoji Kondo, James E. Duval, Jerry L. Modisette, and T. H. Morgan.* **210**, 713, 113-A6 (1976)
- KOSKI, A. T. Electron Temperature in the Elliptical Galaxy NGC 1052. *A. T. Koski and D. E. Osterbrock.* **203**, L49, 8-B5 (1976)
- The Optical Spectra of 3C 227 and Other Broad-Line Radio Galaxies. *D. E. Osterbrock, A. T. Koski, and M. M. Phillips.* **206**, 898, 55-D1 (1976)
- KOVETZ, A. Rotating Stellar Models According to the Quasi-dynamic Method. *A. Kovetz, G. Shaviv, and S. Zisman.* **206**, 809, 54-D1 (1976)
- KRAEMER, W. P. Identification of Interstellar X-ogen as HCO⁺. *W. P. Kraemer and G. H. F. Dierksen.* **205**, L97, 37-C11 (1976)
- KRAFT, ROBERT P. The Origin and Evolution of RR Lyrae Stars of High Metal Abundance. *Ronald E. Taam, Robert P. Kraft, and Nicholas Suntzeff.* **207**, 201, 60-B10 (1976)
- Metal Abundances of RR Lyrae Variables in Selected Galactic Star Fields. I. Baade's Window. *Dennis Butler, Duane Carbon, and Robert P. Kraft.* **210**, 120, 104-D1 (1976)
- KRAUS, J. D. Spectra of Some Ohio Radio Sources: List V. *M. R. Gearhart, J. D. Kraus, and B. H. Andrew.* **30**, 337, 6-D1 (1976) (Abstr. in **204**, 313, 16-D10)
- KRISHNA SWAMY, K. S. Energy Balance of the Infrared Radiation in Planetary Nebulae. *K. V. K. Iyengar and K. S. Krishna Swamy.* **210**, 518, 109-D13 (1976)
- KRISS, G. A. High-Energy X-Ray Observations of the Transient Source A0535+26 from a Balloon-borne Telescope. *F. R. Ricker, A. Scheepmaker, J. E. Ballantine, J. P. Dory, G. A. Kriss, S. G. Ryckman, and W. H. G. Lewin.* **204**, L73, 22-B1 (1976)
- KRISTIAN, J. Upper Limits for the Visible Counterpart of the Hulse-Taylor Binary Pulsar. *J. Kristian, K. D. Clardy, and J. A. Westphal.* **206**, L143, 56-D12 (1976)
- KRISTIAN, JEROME. Precise Positions of Radio Sources. II. Optical Measurements: Erratum. *Jerome Kristian and Allan Sandage.* **205**, 308, 31-C10 (1976) (Orig. paper in **162**, 391, 31-C10)
- The Extension of the Hubble Diagram. I. New Redshifts and BVR Photometry of Remote Cluster Galaxies, and an Improved Richness Correction. *Allan Sandage, Jerome Kristian, and James A. Westphal.* **205**, 688, 38-C5 (1976)
- KRONBERG, P. P. 3C 303: A Source with Unusual Radio and Optical Properties. *P. P. Kronberg.* **203**, L47, 8-B2 (1976)
- KROTO, H. W. Detection of the Heavy Interstellar Molecule Cyanodiacetylene. *L. W. Avery, N. W. Broten, J. M. MacLeod, T. Oka, and H. W. Kroto.* **205**, L173, 42-E4 (1976)
- KRUMM, N. Spatial Distribution of Neutral Hydrogen in Virgo Cluster Galaxies of Early Type. *N. Krumm and E. E. Salpeter.* **208**, L7, 77-A7 (1976)
- KRUPP, B. M. A Statistical Method for Treating Molecular Line Opacities. *C. Sneden, H. R. Johnson, and B. M. Krupp.* **204**, 281, 16-B5 (1976)
- KRUPP, BRIAN M. Treatment of Atomic and Molecular Line Blanketing by Opacity Sampling. *Hollis R. Johnson and Brian M. Krupp.* **206**, 201, 45-B1 (1976)
- KU, W. New Observations of Pulsed X-Ray Emission from NP 0532. *H. L. Kestenbaum, W. Ku, R. Novick, and R. S. Wolff.* **203**, L57, 8-B11 (1976)
- Energy Dependence of the Size of the X-Ray Source in the Crab Nebulae. *W. Ku, H. L. Kestenbaum, R. Novick, and R. S. Wolff.* **204**, L77, 22-B5 (1976)
- KUAN, PUI. Photometric Variations of T Tauri Stars. *Pui Kuan.* **210**, 129, 104-D11 (1976)
- KUHI, LEONARD V. Relationship between Radial Velocity and Light Variations in HR 7331 and Other Delta Scuti Stars. *Michel Breger, John Hutchins, and Leonard V. Kuhl.* **210**, 163, 104-G3 (1976)
- Spectrophotometric Studies of Young Stars. I. The Cepheus IV Association. *Martin Cohen and Leonard V. Kuhl.* **210**, 365, 107-G8 (1976)
- KUIPER, E. N. RODRIGUEZ. High-Velocity Gas in the Orion Infrared Nebula. *B. Zuckerman, T. B. H. Kuiper, and E. N. Rodriguez Kuiper.* **209**, L137, 101-F13 (1976)
- KUIPER, T. B. H. CO Observations of the Expanding Envelope of IRC +10216. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and Robert L. Brown.* **204**, 408, 19-A1 (1976)
- Carbon Recombination Line Observations of the Sharpless 140 Region. *G. R. Knapp, Robert L. Brown, T. B. H. Kuiper, and R. K. Kakar.* **204**, 781, 24-E5 (1976)
- Observations of Heavy-Element Recombination Lines in the Rho Ophiuchi Dark Cloud at 13 Centimeter Wavelength. *G. R. Knapp, T. B. H. Kuiper, and Robert L. Brown.* **206**, 109, 44-B1 (1976)

- CO Observations of NGC 1579 (S222) and S239. *G. R. Knapp, T. B. H. Kuiper, S. L. Knapp, and Robert L. Brown.* **206**, 443, 49-A13 (1976)
- CO Observations of the Expanding Envelope of IRC + 10216: Erratum. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and R. L. Brown.* **207**, 341, 61-E13 (1976) (Orig. paper in **204**, 408, 19-A1)
- High-Velocity Gas in the Orion Infrared Nebula. *B. Zuckerman, T. B. H. Kuiper, and E. N. Rodriguez Kuiper.* **209**, L137, 101-F13 (1976)
- KUNASZ, P. B. Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. II. Picket-Fence Models. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer.* **203**, 647, 10-A2 (1976)
- Resonance-Line Transfer with Partial Redistribution. VIII. Solution in the Comoving Frame for Moving Atmospheres. *Dimitri Mihalas, R. A. Shine, P. B. Kunasz, and D. G. Hummer.* **205**, 492, 35-A1 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. III. Effect of Aberration and Advection Terms. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer.* **206**, 515, 49-G5 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. IV. Frequency-dependent Source Functions for Scattering by Atoms and Electrons. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer.* **210**, 419, 108-D8 (1976)
- KUNDU, M. R. High-Resolution Radio Observations of Three Supernova Remnants. *R. H. Becker and M. R. Kundu.* **204**, 427, 19-B5 (1976)
- 3.7 and 11.1 Centimeter Observations of the Radio Galaxy 3C 386. *R. H. Becker and M. R. Kundu.* **207**, 29, 58-C7 (1976)
- KUNKEL, WILLIAM E. The Reticulum System: An Analog to the Draco Dwarf Galaxy near the Large Magellanic Cloud. *Serge Demers and William E. Kunkel.* **208**, 932, 86-C10 (1976)
- KUNTZ, P. J. Fourier Analysis of Steady-State Reaction Schemes for Interstellar Molecules. *P. J. Kuntz, G. F. Mitchell, and J. Ginsburg.* **209**, 116, 89-B12 (1976)
- KUPO, IRENA. Detection of Ionized Sulfur in the Jovian Magnetosphere. *Irena Kupo, Yuri Mekler, and Aharon Eviatar.* **205**, L51, 32-E3 (1976)
- KURTZ, DONALD W. Metallicity, Pulsation, and the Nature of 32 Virginis. *Donald W. Kurtz, Michel Breger, Steven W. Evans, and William H. Sandmann.* **207**, 181, 60-A4 (1976)
- Metallicity and Pulsation: An Analysis of the Delta Delphini Stars. *Donald W. Kurtz.* **32**, 651, 33-G1 (1976) (Abstr. in **210**, 622, 110-F1)
- KURTZ, R. F. An Observational Study of the AFCRL Infrared Sky Survey. I. Limited Ground-based Survey and Results from Preliminary Catalog. *F. J. Low, R. F. Kurtz, F. J. Vrba, and G. H. Rieke.* **206**, L153, 56-E8 (1976)
- KURUCZ, R. L. Stellar Model Chromospheres. V. Alpha Centauri A (G2 V) and Alpha Centauri B (K1 V). *T. R. Ayres, J. L. Linsky, A. W. Rodgers, and R. L. Kurucz.* **210**, 199, 105-B11 (1976)
- KUTNER, M. L. H₂CO Emission at 2-millimeters in Dark Clouds. *N. J. Evans II and M. L. Kutner.* **204**, L131, 27-B10 (1976)
- The Relation between Carbon Monoxide Emission and Visual Extinction in Cloud L134. *K. D. Tucker, R. L. Dickman, P. J. Encrenaz, and M. L. Kutner.* **210**, 679, 112-E13 (1976)
- KUTNER, MARC L. A Dense Molecular Cloud in the OMC-1/OMC-2 Region. *Marc L. Kutner, Neal J. Evans II, and Kenneth D. Tucker.* **209**, 452, 94-D1 (1976)
- KWAN, JOHN. Infrared Sources in Molecular Clouds. *N. Z. Scoville and John Kwan.* **206**, 718, 53-D7 (1976)
- On the Origin of the 10 Micron Depressions in the Spectra of Compact Infrared Sources. *John Kwan and Nick Scoville.* **209**, 102, 89-A12 (1976)
- The Nature of the Broad Molecular Line Emission at the Kleinmann-Low Nebula. *John Kwan and Nick Scoville.* **210**, L39, 106-D8 (1976)
- LACSER, AVRAHAM. The Ammonia Profile in the Atmosphere of Saturn from Inversion of Its Microwave Emission Spectrum. *George Ohring and Avraham Lacser.* **206**, 622, 51-A8 (1976)
- LACY, C. H. UV Ceti Stars: Statistical Analysis of Observational Data. *C. H. Lacy, T. J. Moffett, and D. S. Evans.* **30**, 85, 2-C1 (1976) (Abstr. in **202**, 844, 99-G14)
- LACY, J. H. Spectral and Spatial Resolution of the 12.8 Micron Ne II Emission from the Galactic Center. *E. R. Wollman, T. R. Geballe, J. H. Lacy, C. H. Townes, and D. M. Rank.* **205**, L5, 32-A7 (1976)
- LADA, CHARLES J. Optical and Millimeter-Wave Observations of the M8 Region. *Charles J. Lada, T. R. Gull, C. A. Gottlieb, and E. W. Gottlieb.* **203**, 159, 2-F2 (1976)
- CO Observations of the Bright-rimmed Cloud B35. *Charles J. Lada and John H. Black.* **203**, L75, 8-D1 (1976)
- H₂O and 22 GHz Continuum Observations of M17. *Charles J. Lada, Dale F. Dickinson, C. A. Gottlieb, and E. L. Wright.* **207**, 113, 59-C1 (1976)
- Detailed Observations of the M17 Molecular Cloud Complex. *Charles J. Lada.* **32**, 603, 33-C1 (1976) (Abstr. in **210**, 622, 110-F1)
- LAFFERTY, WALTER J. Laboratory Microwave Spectrum of Cyanamide. *Donald R. Johnson, Richard D. Suenram, and Walter J. Lafferty.* **208**, 245, 76-E9 (1976)
- LAGET, M. Skylab Ultraviolet Stellar Spectra: A New White Dwarf, HD 149499. *B. S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and M. Laget.* **206**, L71, 47-F4 (1976)
- LAIRD, FRANK N. Detection of X-Ray Emission from the Remnant of the Supernova 1006 A.D. *P. Frank Winkler, Jr. and Frank N. Laird.* **204**, L111, 27-A2 (1976)
- LAMB, D. Q. Observational Constraints on Pulsar Binary Motion. *D. Q. Lamb and F. K. Lamb.* **204**, 168, 14-G9 (1976)
- Dynamical Effects of Possible Solid Cores in Neutron Stars and Degenerate Dwarfs. *G. Baym, D. Q. Lamb, and F. K. Lamb.* **208**, 829, 85-D13 (1976)
- Effects of Neutrino Degeneracy in Supernovae Models. *D. Q. Lamb and C. J. Pethick.* **209**, L77, 96-G8 (1976)
- LAMB, F. K. Observational Constraints on Pulsar Binary Motion. *D. Q. Lamb and F. K. Lamb.* **204**, 168, 14-G9 (1976)
- Dynamical Effects of Possible Solid Cores in Neutron Stars and Degenerate Dwarfs. *G. Baym, D. Q. Lamb, and F. K. Lamb.* **208**, 829, 85-D13 (1976)
- LAMB, FREDERICK K. An Opaque Shell around Hercules X-1? *Richard McCray and Frederick K. Lamb.* **204**, L115, 27-A6 (1976)
- LAMB, R. C. Search for Pulsed Gamma Rays of $\sim 10^{13}$ eV from NP 0532. *R. A. Erickson, R. K. Finkle, and R. C. Lamb.* **210**, 539, 109-F7 (1976)
- LAMB, SUSAN A. On the Evolution of Massive Stars through the Core Carbon-burning Phase. *Susan A. Lamb, Icko Iben, Jr., and W. Michael Howard.* **207**, 209, 60-C4 (1976)
- LAMBERT, D. L. Copernicus Observations of Betelgeuse and Antares. *A. P. Bernat and D. L. Lambert.* **204**, 830, 25-A13 (1976)
- Isotopic Abundances of Magnesium in Arcturus. *J. Tomkin and D. L. Lambert.* **208**, 436, 79-F6 (1976)
- K 1 7699 Å Emission from the Betelgeuse Shell. *A. P. Bernat and D. L. Lambert.* **210**, 395, 108-B10 (1976)
- The ¹²C/¹³C Ratio in Stellar Atmospheres. VI. Five Luminous Cool Stars. *K. H. Hinkle, D. L. Lambert, and R. L. Snell.* **210**, 684, 112-F4 (1976)
- The ¹²C/¹³C Ratio in Stellar Atmospheres. VII. 38 Giants and Supergiants. *J. Tomkin, R. E. Luck, and D. L. Lambert.* **210**, 694, 112-G1 (1976)
- LAMBERT, DAVID L. Silicon Monoxide in the 4 Micron Infrared Spectrum of Long-Period Variables. *Kenneth H. Hinkle, Thomas G. Barnes, David L. Lambert, and Reinhard Beer.*

- 210, L141, 155-B11 (1976)
- LAMERS, HENNY J. G. L. M. Mass Ejection from the O4f Star Zeta Puppis. *Henny J. G. L. M. Lamers and Donald C. Morton*. 32, 715, 34-F1 (1976) (Abstr. in 210, 624, 110-F3)
- LAMPTON, MICHAEL. An Ultrasoft X-Ray Source in Coma Berenices. *Bruce Margon, Roger Malina, Stuart Bowyer, Ray Cruddace, and Michael Lampton*. 203, L25, 4-E1 (1976)
- Discovery of a Nonisolar Extreme-Ultraviolet Source. *Michael Lampton, Bruce Margon, Francesco Paresce, Robert Stern, and Stuart Bowyer*. 203, L71, 8-C9 (1976)
- Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources. *Patrick Henry, Stuart Bowyer, Michael Lampton, Francesco Paresce, and Raymond Cruddace*. 205, 426, 34-C3 (1976)
- Soft X-Ray Profile and Spectrum of the Supernova Remnant IC 443. *Roger Malina, Michael Lampton, and Stuart Bowyer*. 207, 894, 70-B11 (1976)
- Parameter Estimation in X-Ray Astronomy. *Michael Lampton, Bruce Margon, and Stuart Bowyer*. 208, 177, 75-G9 (1976)
- Observations of Interstellar Helium with a Gas Absorption Cell: Limits on the Bulk Velocity of the Interstellar Medium. *Jay Freeman, Francesco Paresce, Stuart Bowyer, and Michael Lampton*. 208, 747, 84-C7 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. *Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer*. 209, 525, 95-B4 (1976)
- Soft X-Ray Morphology of the Virgo, Coma, and Perseus Clusters of Galaxies. *Roger Malina, Michael Lampton, and Stuart Bowyer*. 209, 678, 98-C2 (1976)
- An Intense Extreme-Ultraviolet Source in Cetus. *Bruce Margon, Michael Lampton, Stuart Bowyer, Robert Stern, and Francesco Paresce*. 210, L79, 111-C6 (1976)
- LANDI DEGL'INNOCENTI, EGIDIO. Are There Spots on Magnetic White Dwarfs? *Egidio Landi Degl'Innocenti*. 209, 208, 90-B9 (1976)
- LANG, KENNETH R. Radio-Frequency Limits to the Abundance of Intergalactic Neutral Hydrogen. *Kenneth R. Lang*. 206, L91, 52-B11 (1976)
- LANGER, WILLIAM. The Carbon Monoxide Abundance in Interstellar Clouds. *William Langer*. 206, 699, 53-C2 (1976)
- LANGER, WILLIAM D. Thermal-chemical Instabilities in CO Clouds. *A. E. Glassgold and William D. Langer*. 204, 403, 18-G9 (1976)
- Abundances of Simple Oxygen-bearing Molecules and Ions in Interstellar Clouds. *A. E. Glassgold and William D. Langer*. 206, 85, 43-G4 (1976)
- Interstellar Cloud Evolution and the Abundance of Formaldehyde. *William D. Langer*. 210, 328, 107-D13 (1976)
- LAROS, JOHN G. Analysis of a Scorpius X-1 X-Ray Spectrum Obtained with Cooled Silicon (Li) Detectors. *John G. Laros and Sidney Singer*. 205, 550, 35-E3 (1976)
- LARSON, HAROLD P. A Lower Limit on the Surface $^{12}\text{C}/^{13}\text{C}$ Ratio in Alpha Orionis. *T. N. Gautier III, Rodger I. Thompson, Uwe Fink, and Harold P. Larson*. 205, 841, 40-A10 (1976)
- The Infrared Emission of Upsilon Sagittarii, 89 Herculis, and R Coronae Borealis. *Richard Treffers, Neville J. Woolf, Uwe Fink, and Harold P. Larson*. 207, 680, 66-E10 (1976)
- Infrared Spectra of the Satellites of Saturn: Identification of Water Ice on Iapetus, Rhea, Dione, and Tethys. *Uwe Fink, Harold P. Larson, T. N. Gautier III, and R. R. Treffers*. 207, L63, 62-F1 (1976)
- Detection of Molecular Hydrogen Quadrupole Emission in the Orion Nebula. *T. N. Gautier III, Uwe Fink, Richard R. Treffers, and Harold P. Larson*. 207, L129, 67-E3 (1976)
- The Spectrum of the Planetary Nebulae NGC 7027 from 0.9 to 2.7 Microns. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III*. 209, 793, 99-D3 (1976)
- The 1.4-2.7 Micron Spectrum of the Point Source at the Galactic Center. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III*. 209, L115, 101-E1 (1976)
- LASKER, BARRY M. A Possible Optical Identification for PSR 0833-45. *Barry M. Lasker*. 203, 193, 3-B1 (1976)
- High-Frequency Stellar Oscillations. XI. The ZZ Ceti Star BPM 30551. *James E. Hesser, Barry M. Lasker, and Hermann E. Neupert*. 209, 853, 100-A8 (1976)
- LATOUR, JEAN. Stellar Convection Theory. I. The Anelastic Modal Equations. *Jean Latour, Edward A. Spiegel, Juri Toomre, and Jean-Paul Zahn*. 207, 233, 60-E1 (1976)
- Stellar Convection Theory. II. Single-Mode Study of the Second Convection Zone in an A-Type Star. *Juri Toomre, Jean-Paul Zahn, Jean Latour, and Edward A. Spiegel*. 207, 545, 65-C1 (1976)
- LATTIMER, JAMES M. The Tidal Disruption of Neutron Stars by Black Holes in Close Binaries. *James M. Lattimer and David N. Schramm*. 210, 549, 109-G3 (1976)
- LAUFER, B. The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper*. 204, L67, 22-A10 (1976)
- The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. *T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod*. 210, L127, 115-A12 (1976)
- LAUGHLIN, C. Oscillator Strengths in the Mg Isoelectronic Sequence. *G. A. Victor, R. F. Stewart, and C. Laughlin*. 31, 237, 15-D1 (1976) (Abstr. in 206, 343, 46-E11)
- LAYZER, DAVID. The Arrow of Time. *David Layzer*. 206, 559, 50-C7 (1976)
- LEA, SUSAN M. The Dynamics of the Intergalactic Medium in the Vicinity of Clusters of Galaxies. *Susan M. Lea*. 203, 569, 9-B3 (1976)
- Accretion onto Magnetized Neutron Stars: Structure and Interchange Instability of a Model Magnetosphere. *Jonathan Arons and Susan M. Lea*. 207, 914, 70-D3 (1976)
- Pulsating X-Ray Sources: Slowly Rotating Neutron Stars? *Susan M. Lea*. 209, L69, 96-G1 (1976)
- The Dynamical Interaction between Galaxies and Intracluster Gas in Clusters of Galaxies. *Susan M. Lea and David S. De Young*. 210, 647, 112-C6 (1976)
- Accretion onto Magnetized Neutron Stars: Normal Mode Analysis of the Interchange Instability at the Magnetopause. *Jonathan Arons and Susan M. Lea*. 210, 792, 113-G3 (1976)
- LEBOFSKY, M. J. An Observational Study of the AFCRL Infrared Sky Survey. II. Present Results of a New Program to Study the Final Catalog. *M. J. Lebofsky, S. G. Kleinmann, G. H. Rieke, and F. J. Low*. 206, L157, 56-E11 (1976)
- LECAR, M. Supernovae in Binary Systems: Erratum. *J. C. Wheeler, M. Lecar, and C. F. McKee*. 209, 961, 101-B12 (1976) (Orig. paper in 200, 145, 64-E1)
- LECAR, MYRON. Tidal Circularization of the Binary X-Ray Sources Hercules X-1 and Centaurus X-3. *Myron Lecar, J. Craig Wheeler, and Christopher F. McKee*. 205, 556, 35-E9 (1976)
- LECKRONE, DAVID S. The Ultraviolet Spectrum of Alpha Lyrae. *Rosanna Faragginana, Margherita Hack, and David S. Leckrone*. 32, 501, 31-B1 (1976) (Abstr. in 209, 648, 96-D9)
- LEE, DAVID L. Theoretical Frameworks for Testing Relativistic Gravity. V. Post-Newtonian Limit of Rosen's Theory. *David L. Lee, Carlton M. Caves, Wei-Tou Ni, and Clifford M. Will*. 206, 555, 50-C3 (1976)
- LEE, L. C. The Irregularity Spectrum in Interstellar Space. *L. C. Lee and J. R. Jokipii*. 206, 735, 53-E11 (1976)
- Strong Scintillations in Astrophysics. IV. Cross-Correlation

- between Different Frequencies and Finite Bandwidth Effects. *L. C. Lee*. **206**, 744, 53-F6 (1976)
- Plasma Irregularities in the Comet's Tail. *L. C. Lee*. **210**, 254, 105-F11 (1976)
- LEQUEUX, JAMES. Implications of the Presence of Deuterium in the Galactic Center. *Jean Audouze, James Lequeux, Hubert Reeves, and Laurent Vigroux*. **208**, L51, 82-A6 (1976)
- LERCHE, IAN. Mathematical Theory of Isothermal Blast Waves and the Question of Their Applicability to Supernova Remnants. *Ian Lerche and Vytenis M. Vasyliunas*. **210**, 85, 104-A5 (1976)
- LESH, JANET ROUNTREE. Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIV. The Beta Cephei Stars Delta Ceti and Gamma Pegasi. *Janet Rountree Lesh*. **208**, 135, 75-D9 (1976)
- LESTER, DANIEL F. Three-Color Photometry of HDE 226868: The Optical Counterpart of Cygnus X-1. *Daniel F. Lester, Ira G. Nolt, Shirley A. Stearns, Peter Straton, and James V. Radostitz*. **205**, 855, 40-B12 (1976)
- LESTER, JOHN B. An Analysis of the Ultraviolet Spectrum of the Helium-rich Star HR 3089. *John B. Lester*. **210**, 153, 104-F7 (1976)
- LEUNG, CHUN MING. Radiation Transport and Non-LTE Analysis of Interstellar Molecular Lines. I. Carbon Monoxide. *Chun Ming Leung and Harvey S. Liszt*. **208**, 732, 84-B6 (1976)
- Radiation Transport in Dense Interstellar Dust Clouds. II. Infrared Emission from Molecular Clouds Associated with H II Regions. *Chun Ming Leung*. **209**, 75, 88-F12 (1976)
- LEVATO, HUGO. Synchronization in Binaries and Age. *Hugo Levato*. **203**, 680, 10-C7 (1976)
- LEVINE, A. On the Ultrasoft X-Ray Background. *A. Levine, S. Rappaport, R. Doxsey, and G. Jernigan*. **205**, 226, 30-D10 (1976)
- LEVY, MARTIN. Deviation from a Maxwellian Velocity Distribution in Regions of Interstellar Molecular Hydrogen. *Robert J. Gould and Martin Levy*. **206**, 435, 49-A5 (1976)
- LEVY, SAUL G. Multiplicity among Solar-Type Stars. *Helmut A. Abt and Saul G. Levy*. **30**, 273, 5-E1 (1976) (Abstr. in **204**, 313, 16-D10)
- LEWIN, P. T. Water Vapor Emission from H II Regions and Infrared Stars. *B. T. Cato, B. O. Rönnäng, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardasmenos, and J. F. Shanley*. **208**, 87, 74-G11 (1976)
- LEWIN, W. The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper*. **204**, L67, 22-A10 (1976)
- Orbital Elements and Masses for the SMC X-1/Sanduleak 160 Binary System. *F. Primini, S. Rappaport, P. C. Joss, G. W. Clark, W. Lewin, F. Li, W. Mayer, and J. McClintock*. **210**, L71, 111-B10 (1976)
- LEWIN, W. H. G. MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport*. **203**, L21, 4-D11 (1976)
- High-Energy X-Ray Observations of the Transient Source A0535+26 from a Balloon-borne Telescope. *G. R. Ricker, A. Scheepmaker, J. E. Ballintine, J. P. Doty, G. A. Kriss, S. G. Ryckman, and W. H. G. Lewin*. **204**, L73, 22-B1 (1976)
- The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. *A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballintine, J. P. Doty, P. M. Downey, and W. H. G. Lewin*. **205**, L65, 37-A11 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport*. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. *J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini*. **206**, L99, 52-C4 (1976)
- A Fast Transient Source of Hard X-Rays at High Galactic Latitude. *S. Rappaport, J. Buff, G. Clark, W. H. G. Lewin, T. Matilsky, and J. McClintock*. **206**, L139, 56-D7 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson*. **207**, L95, 67-B12 (1976)
- LEWIN, WALTER H. G. Discovery of X-Ray Bursts from MXB 1728-34. *Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li*. **210**, L13, 106-B11 (1976)
- L'HEUREUX, JACQUES. Quiet-Time Increases of Low-Energy Electrons: The Jovian Origin. *Jacques L'Heureux and Peter Meyer*. **209**, 955, 101-B4 (1976)
- LI, F. The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper*. **204**, L67, 22-A10 (1976)
- Orbital Elements and Masses for the SMC X-1/Sanduleak 160 Binary System. *F. Primini, S. Rappaport, P. C. Joss, G. W. Clark, W. Lewin, F. Li, W. Mayer, and J. McClintock*. **210**, L71, 111-B10 (1976)
- LI, F. K. OSO-7 Observations of High Galactic Latitude X-Ray Sources. *T. H. Markert, C. R. Canizares, G. W. Clark, F. K. Li, P. L. Northridge, G. F. Sprott, and G. F. Wargo*. **206**, 265, 45-F13 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson*. **207**, L95, 67-B12 (1976)
- LI, FUK KWOK. OSO-7 Observations of the X-Ray Nova 3U 1543-47. *Fuk Kwok Li, George F. Sprott, and George W. Clark*. **203**, 187, 3-A7 (1976)
- Discovery of X-Ray Bursts from MXB 1728-34. *Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li*. **210**, L13, 106-B11 (1976)
- LIANG, E. P. Dynamics of Primordial Inhomogeneities in Model Universes. *E. P. Liang*. **204**, 235, 15-E8 (1976)
- LIEBERT, J. The Absorption-Line Spectrum of the BL Lacertae Object AO 0235+164. *E. M. Burbidge, R. D. Caldwell, Harding E. Smith, J. Liebert, and H. Spinrad*. **205**, L117, 42-A10 (1976)
- LIEBERT, JAMES. GH7-21: A Possible Degenerate Star with Narrow Hydrogen Lines and Strong Carbon Features. *James Liebert*. **204**, L93, 22-C7 (1976)
- Detection of a He I 4517 Å Absorption Feature in the DB White Dwarf GD 190. *James Liebert, E. A. Beaver, J. W. Robertson, and P. A. Strittmatter*. **204**, L119, PKS 0116+082 and 3C 330: Two Distant Cluster Radio Galaxies. *Hyron Spinrad, James Liebert, Harding E. Smith, and Richard Hunstead*. **206**, L79, 52-A6 (1976)
- Identification and Redshift of the Triple Radio Source 3C 154. *Hyron Spinrad and James Liebert*. **208**, 292, 78-B7 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. *Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer*. **209**, 525, 95-B4 (1976)
- The Temperature and Radius of the White Dwarf Stein 2051B. *James Liebert*. **210**, 715, 113-A8 (1976)

- LIGHTMAN, A. P. A Two-Temperature Accretion Disk Model for Cygnus X-1: Structure and Spectrum. *S. L. Shapiro, A. P. Lightman, and D. M. Eardley*. **204**, 187, 15-B1 (1976)
- LIGHTMAN, ALAN P. Polarization of X-Rays from Cygnus X-1: A Test of the Accretion Disk Model. *Alan P. Lightman and Stuart L. Shapiro*. **203**, 701, 10-E1 (1976)
- Black Holes in X-Ray Binaries: Marginal Existence and Rotation Reversals of Accretion Disks. *Stuart L. Shapiro and Alan P. Lightman*. **204**, 555, 20-E5 (1976)
- Rapidly Rotating, Post-Newtonian Neutron Stars. *Stuart L. Shapiro and Alan P. Lightman*. **207**, 263, 60-G3 (1976)
- LILLER, M. H. Preliminary Photometry of the X-Ray Globular Cluster NGC 6624. *M. H. Liller and W. Liller*. **207**, L109, 67-C11 (1976)
- LILLER, W. Preliminary Photometry of the X-Ray Globular Cluster NGC 6624. *M. H. Liller and W. Liller*. **207**, L109, 67-C11 (1976)
- LILLER, WILLIAM. Optical Observations of the Recurrent Nova Associated with A0620-00: 1917-1975. *Lola J. Eachus, Edward L. Wright, and William Liller*. **203**, L17, 4-D8 (1976)
- The Photometric and Spectrographic Histories of HD 245770 \pm A0535+26: The Transient X-Ray Source. *Mark Stier and William Liller*. **206**, 257, 45-F3 (1976)
- LILLER, WM. The Photometric Histories of CRL 2688 (the "Egg" Nebula) and CRL 618. *Elaine W. Gottlieb and Wm. Liller*. **207**, L135, 67-E10 (1976)
- LILLIE, C. F. Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXV. Diffuse Galactic Light in the 1500-4200 Å Region and the Scattering Properties of Interstellar Dust Grains. *C. F. Lillie and A. N. Witt*. **208**, 64, 74-F1 (1976)
- LINDBLOM, LEE. Stationary Stars Are Axisymmetric. *Lee Lindblom*. **208**, 873, 85-F2 (1976)
- LINDSEY, C. Solar Limb Brightening in Submillimeter Wavelengths. *C. Lindsey and H. S. Hudson*. **203**, 753, 11-B5 (1976)
- LINGENFELTER, R. E. The Pulsar Contribution to the Galactic Gamma-Ray Emission. *J. C. Higdon and R. E. Lingenfelter*. **208**, L107, 86-F6 (1976)
- LINKE, R. A. Isotope Abundances in Interstellar Molecular Clouds. *P. G. Wannier, A. A. Penzias, R. A. Linke, and R. W. Wilson*. **204**, 26, 13-C6 (1976)
- Isotopic Abundances in Interstellar Carbon Monosulfide. *R. W. Wilson, A. A. Penzias, P. G. Wannier, and R. A. Linke*. **204**, L135, 27-C1 (1976)
- The Abundance Ratio $^{18}\text{O}/^{16}\text{O}$ in Dense Interstellar Clouds. *P. G. Wannier, R. Lucas, R. A. Linke, P. J. Encrenaz, A. A. Penzias, and R. W. Wilson*. **205**, L169, 42-E1 (1976)
- LINSKY, J. L. The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
- Ultraviolet Observations of Cool Stars. V. The Local Density of Interstellar Matter. *W. McClintock, R. C. Henry, H. W. Moos, and J. L. Linsky*. **204**, L103, 22-D3 (1976)
- The Mg II h and k Lines. II. Comparison with Synthesized Profiles and Ca II K. *T. R. Ayres and J. L. Linsky*. **205**, 874, 40-D6 (1976)
- Stellar Model Chromospheres. V. Alpha Centauri A (G2 V) and Alpha Centauri B (K1 V). *T. R. Ayres, J. L. Linsky, A. W. Rodgers, and R. L. Kurucz*. **210**, 199, 105-B11 (1976)
- LINSKY, JEFFREY L. Properties of the Chromosphere-Corona Transition Region in Capella. *Bernhard M. Haisch and Jeffrey L. Linsky*. **205**, L39, 32-C10 (1976)
- Excitation and Ionization of Helium in the Solar Atmosphere. *Eugene H. Avrett, Jorge E. Vernazza, and Jeffrey L. Linsky*. **207**, L199, 72-E7 (1976)
- LISZT, HARVEY S. Radiation Transport and Non-LTE Analysis of Interstellar Molecular Lines. I. Carbon Monoxide. *Chun Ming Leung and Harvey S. Liszt*. **208**, 732, 84-B6 (1976)
- LITES, B. W. Preliminary Results from the Orbiting Solar Observatory 8: Transition-Zone Dynamics over a Sunspot. *E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. A. Shine, R. G. Athay, and O. R. White*. **210**, L97, 111-D11 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Velocities in the Solar Chromosphere Observed in the Si II λ 1816 Line. *E. G. Chipman, E. C. Bruner, Jr., R. A. Shine, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White*. **210**, L103, 111-E4 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. *R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White*. **210**, L107, 111-E8 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Persistent Velocity Fields in the Chromosphere and Transition Region. *B. W. Lites, E. C. Bruner, Jr., E. G. Chipman, R. A. Shine, G. J. Rottman, O. R. White, and R. G. Athay*. **210**, L111, 111-E12 (1976)
- LITTLE, A. G. Radio Emission from a Source near the Flare Star AD Leonis. *R. D. Robinson, O. B. Slee, and A. G. Little*. **203**, L91, 3-E6 (1976)
- LITVAK, M. M. Observations of Interstellar Silicon Monoxide. *Dale F. Dickinson, C. A. Gottlieb, Elaine W. Gottlieb, and M. M. Litvak*. **206**, 79, 43-F12 (1976)
- Lo, K. Y. The Unusual H₂O Maser Source near Herbig-Haro Object Number 11. *K. Y. Lo, M. Morris, J. M. Moran, and A. D. Haschick*. **204**, L21, 17-B8 (1976)
- CRL 2688 and CRL 618: Proto-Planetary Nebulae? *K. Y. Lo and Kenneth P. Bechis*. **205**, L21, 32-B7 (1976)
- 6 Centimeter Observations of Radio Galaxies over a 228 Kilometer Baseline. *R. C. Walker, K. Y. Lo, B. F. Burke, K. J. Johnston, and J. M. Moran*. **208**, 296, 78-B10 (1976)
- One-Millimeter Continuum Emission Studies of Four Molecular Clouds. *W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer*. **209**, 94, 89-A3 (1976)
- LOCKHART, I. A. Aperture Synthesis of Neutral Hydrogen in the Galaxy M33. *D. H. Rogstad, M. C. H. Wright, and I. A. Lockhart*. **204**, 703, 23-F8 (1976)
- LOCKMAN, FELIX J. On the Derivation of Nebular Electron Temperatures from Radio Recombination Line Observations. *Felix J. Lockman and Robert L. Brown*. **207**, 436, 64-A5 (1976)
- A Survey of Ionized Hydrogen in the Plane of the Galaxy. *Felix J. Lockman*. **209**, 429, 94-B6 (1976)
- LOESER, RUDOLF. Structure of the Solar Chromosphere. II. The Underlying Photosphere and Temperature-Minimum Region. *Jorge E. Vernazza, Eugene H. Avrett, and Rudolf Loeser*. **30**, 1, 1-A2 (1976) (Abstr. in **202**, 844, 99-G14)
- LOEWENSTEIN, R. F. Far-Infrared Photometry of NGC 1068. *C. M. Telesco, D. A. Harper, and R. F. Loewenstein*. **203**, L53, 8-B8 (1976)
- One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. *M. W. Werner, I. Gatley, D. A. Harper, E. E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson*. **204**, 420, 19-A13 (1976)
- LONG, K. S. Soft X-Rays from the Large Magellanic Cloud: Implications on the Origin of the Diffuse X-Ray Background. *K. S. Long, P. C. Agrawal, and G. P. Garmire*. **206**, 411, 48-F7 (1976)
- Search for X-Ray Line Emission from A0620-00. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **208**, L27, 77-B13 (1976)
- Measurement of the X-Ray Polarization of the Crab Nebula. *M. C. Weisskopf, G. G. Cohen, H. L. Kestenbaum, K. S. Long, R. Novick, and R. S. Wolff*. **208**, L125, 86-G8 (1976)
- The Graphite Crystal X-Ray Spectrometer on OSO-8. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **210**, 805, 114-A2 (1976)
- LOREN, ROBERT B. Colliding Clouds and Star Formation in NGC 1333. *Robert B. Loren*. **209**, 466, 94-E1 (1976)

- LORRE, JEAN. Image Processing of Galaxy Photographs. *Halton Arp and Jean Lorre*. **210**, 58, 103-E9 (1976)
- LOVAS, F. J. Observation of the 616-515 Transitions of Acetaldehyde in Sagittarius B2. *W. Gilmore, M. Morris, D. R. Johnson, F. J. Lovas, B. Zuckerman, B. E. Turner, and P. Palmer*. **204**, 43, 13-D10 (1976)
- Detection, Identification, and Observations of Interstellar H^{13}CO^+ . *L. E. Snyder, J. M. Hollis, F. J. Lovas, and B. L. Ulich*. **209**, 67, 88-F2 (1976)
- Radio Detection of Interstellar DCO^+ . *J. M. Hollis, L. E. Snyder, F. J. Lovas, and D. Buhl*. **209**, L83, 97-A1 (1976)
- LOVAS, FRANK J. Millimeter Emission Lines in Orion A. *Frank J. Lovas, Donald R. Johnson, David Buhl, and Lewis E. Snyder*. **209**, 770, 99-B6 (1976)
- LOW, F. J. The Infrared Emission of M17. *D. A. Harper, F. J. Low, G. H. Rieke, and Harley A. Thronson, Jr.* **205**, 136, 29-D6 (1976)
- An Observational Study of the AFCRL Infrared Sky Survey. I. Limited Ground-based Survey and Results from Preliminary Catalog. *F. J. Low, R. F. Kurtz, F. J. Vrba, and G. H. Rieke*. **206**, L153, 56-E8 (1976)
- An Observational Study of the AFCRL Infrared Sky Survey. II. Present Results of a New Program to Study the Final Catalog. *M. J. Lebofsky, S. G. Kleinmann, G. H. Rieke, and F. J. Low*. **206**, L157, 56-E11 (1976)
- A Far-Infrared Map of the Ophiuchus Dark Cloud Region. *G. G. Fazio, E. L. Wright, M. Zeilik II, and F. J. Low*. **206**, L165, 56-F5 (1976)
- Far-Infrared Observations of M20 (NGC 6514). *E. L. Wright, G. G. Fazio, and F. J. Low*. **208**, L87, 82-C12 (1976)
- The Effective Temperature of Uranus. *G. G. Fazio, W. A. Traub, E. L. Wright, F. J. Low, and L. Trafton*. **209**, 633, 96-C7 (1976)
- LUBOW, STEPHEN H. Gas Dynamics of Semidetached Binaries. II. The Vertical Structure of the Stream. *Stephen H. Lubow and Frank H. Shu*. **207**, L53, 62-E6 (1976)
- On the Structure of Contact Binaries. I. The Contact Discontinuity. *Frank H. Shu, Stephen H. Lubow, and Lawrence Anderson*. **209**, 536, 95-C2 (1976)
- LUCAS, R. Gas Motions in the Center of the Galaxy NGC 253 from H I Line Interferometry. *S. T. Gottesman, R. Lucas, L. Welachew, and M. C. H. Wright*. **204**, 699, 23-F4 (1976)
- The Abundance Ratio $^{17}\text{O}/^{18}\text{O}$ in Dense Interstellar Clouds. *P. G. Wannier, R. Lucas, R. A. Linke, P. J. Encrenaz, A. A. Penzias, and R. W. Wilson*. **205**, L169, 42-E1 (1976)
- LUCCHIN, F. Conditions for Galaxy Formation from Adiabatic Fluctuations. *S. A. Bonometto and F. Lucchin*. **206**, 391, 48-E1 (1976)
- LUCK, R. E. The $^{12}\text{C}/^{13}\text{C}$ Ratio in Stellar Atmospheres. VII. 38 Giants and Supergiants. *J. Tomkin, R. E. Luck, and D. L. Lambert*. **210**, 694, 112-G1 (1976)
- LUCKE, R. Discovery of X-Ray Pulsations in SMC X-1. *R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman*. **206**, L25, 47-B13 (1976)
- LUCY, L. B. On The Mass of the Halo Population. *L. B. Lucy*. **203**, 75, 1-F7 (1976)
- W Ursae Majoris Systems with Marginal Contact. *L. B. Lucy*. **205**, 208, 30-C5 (1976)
- Mass Loss by Cool Carbon Stars. *L. B. Lucy*. **205**, 482, 34-G4 (1976)
- An Analysis of the Variable Radial Velocity of Alpha Cygni. *L. B. Lucy*. **206**, 499, 49-F3 (1976)
- LUDDEN, D. J. Direct Photography of the Gum Nebula. *John C. Brandt, Robert G. Roosen, J. Thompson, and D. J. Ludden*. **208**, 109, 75-B6 (1976)
- LUMME, KARI. Azimuthal Brightness Variations in Saturn's Rings. *Kari Lumme and William M. Irvine*. **204**, L55, 17-E3 (1976)
- LUTZ, BARRY L. Laboratory Band Strengths of Methane and Their Application to the Atmospheres of Jupiter, Saturn, Uranus, Neptune, and Titan. *Barry L. Lutz, Tobias Owen, and Robert D. Cess*. **203**, 541, 7-G4 (1976)
- On the 6825 Å Band of Methane. *Barry L. Lutz and Tobias Owen*. **208**, L99, 82-D9 (1976)
- LUTZ, J. H. The Peculiar Object He 2-467. *J. H. Lutz, T. E. Lutz, J. B. Kaler, D. E. Osterbrock, and S. A. Gregory*. **203**, 481, 7-B9 (1976)
- LUTZ, T. E. The Peculiar Object He 2-467. *J. H. Lutz, T. E. Lutz, J. B. Kaler, D. E. Osterbrock, and S. A. Gregory*. **203**, 481, 7-B9 (1976)
- LYNCH, MICHEL A. VLBI Measurements of Jovian S Bursts. *Michel A. Lynch, Thomas D. Carr, and Jorge May*. **207**, 325, 61-D9 (1976)
- LYNDS, C. R. Digital Image Reconstruction Applied to Alpha Orionis. *C. R. Lynds, S. P. Worden, and J. W. Harvey*. **207**, 174, 59-G9 (1976)
- LYNDS, ROGER. On the Interpretation of Ring Galaxies: The Binary Ring System II Hz 4. *Roger Lynds and Alar Toomre*. **209**, 382, 93-E12 (1976)
- MA, C. An Unusually Strong Radio Outburst in Algol: VLBI Observations. *T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr.* **206**, L107, 52-C12 (1976)
- MACALPINE, GORDON M. Possible Collisional Enhancement of He I $\lambda 5876$ in Seyfert Galaxies and QSOs. *Gordon M. MacAlpine*. **204**, 694, 23-E13 (1976)
- MACCONNELL, DARRELL J. The Temperature, Luminosity, and Spectrum of Kapteyn's Star. *Robert F. Wing, Charles A. Dean, and Darrell J. MacConnell*. **205**, 186, 30-A2 (1976)
- MACGREGOR, K. B. Magnetic Acceleration of Winds from Solar-Type Stars. *J. W. Belcher and K. B. MacGregor*. **210**, 498, 109-C7 (1976)
- MACKLIN, R. L. Stellar Neutron Capture in the Thallium Isotopes. *R. L. Macklin and R. R. Winters*. **208**, 812, 85-A10 (1976)
- MACLEOD, J. M. Detection of the Heavy Interstellar Molecule Cyanodiacetylene. *L. W. Avery, N. W. Broten, J. M. MacLeod, T. Oka, and H. W. Kroto*. **205**, L173, 42-E4 (1976)
- Evidence for Weak Maser Action in Interstellar Cyanodiacetylene. *N. W. Broten, J. M. MacLeod, T. Oka, L. W. Avery, J. W. Brooks, R. X. McGee, and Lynette M. Newton*. **209**, L143, 101-G6 (1976)
- MAEHL, R. C. The Isotopic Composition of Cosmic Rays with $5 \leq Z \leq 26$. *A. J. Fisher, F. A. Hagen, R. C. Maehl, J. F. Ormes, and J. F. Arens*. **205**, 938, 41-B3 (1976)
- MAHAFFY, JOHN. On the Sun's Acoustical Spectrum. *Icko Iben, Jr. and John Mahaffy*. **209**, L39, 92-C11 (1976)
- MAHANTHAPPA, K. T. Stellar Neutrino Pair Emission from De-excitation of Nuclear State via Weak Neutral Currents. *J. P. Crawford, C. J. Hansen, and K. T. Mahanthappa*. **206**, 208, 45-B8 (1976)
- MALIN, S. Some Astrophysical Effects of the Time Variation of All Masses. *V. N. Mansfield and S. Malin*. **209**, 335, 93-B6 (1976)
- MALINA, R. A Search for Optical Counterparts of Nine Galactic X-Rays Sources. *A. Davidsen, R. Malina, and S. Bowyer*. **203**, 448, 6-F12 (1976)
- MALINA, ROGER. An Ultrasoft X-Ray Source in Coma Berenices. *Bruce Margon, Roger Malina, Stuart Bowyer, Ray Cruddace, and Michael Lampton*. **203**, L25, 4-E1 (1976)
- An Observation of the Diffuse Soft X-Ray/Extreme-Ultraviolet Background. *Webster Cash, Roger Malina, and Robert Stern*. **204**, L7, 17-A8 (1976)
- Soft X-Ray Profile and Spectrum of the Supernova Remnant IC 443. *Roger Malina, Michael Lampton, and Stuart Bowyer*. **207**, 894, 70-B11 (1976)
- Soft X-Ray Morphology of the Virgo, Coma, and Perseus Clusters of Galaxies. *Roger Malina, Michael Lampton, and Stuart Bowyer*. **209**, 678, 98-C2 (1976)

- MALINA, ROGER F. A Soft X-Ray Map of the Perseus Cluster of Galaxies. *Webster Cash, Roger F. Malina, and Richard S. Wolff*. **209**, L111, 101-D7 (1976)
- MALKAN, MATTHEW A. A Radio Recombination-Line Study of the Planetary Nebula NGC 7027. *Eric J. Chaisson and Matthew A. Malkan*. **210**, 108, 104-C1 (1976)
- MALLAMA, A. D. The Ultraviolet Variations of Iota Cassiopeiae. *M. R. Molnar, A. D. Mallama, A. V. Holm, and D. G. Soskey*. **209**, 146, 89-E2 (1976)
- MANSFIELD, V. N. Some Astrophysical Effects of the Time Variation of All Masses. *V. N. Mansfield and S. Malin*. **209**, 335, 93-B6 (1976)
- Dirac Cosmologies and the Microwave Background. *V. N. Mansfield*. **210**, L137, 115-B7 (1976)
- MARAN, STEPHEN P. The Origin of OB Associations and Extended Regions of High-Energy Activity in the Galaxy through Supernova Cascade Processes. *Hakki B. Ögelman and Stephen P. Maran*. **209**, 124, 89-C6 (1976)
- MARASCHI, LAURA. The Effect of Radiation Pressure on Accretion Disks around Black Holes. *Laura Maraschi, Cesare Reina, and Aldo Treves*. **206**, 295, 46-B3 (1976)
- MARCHANT, ALAN B. Why Globular Clusters Are So Spherical. *Stuart L. Shapiro and Alan B. Marchant*. **210**, 757, 113-D9 (1976)
- MARGON, BRUCE. An Ultrasoft X-Ray Source in Coma Berenices. *Bruce Margon, Roger Malina, Stuart Bowyer, Ray Cruddace, and Michael Lampton*. **203**, L25, 4-E1 (1976)
- Discovery of a Nonsolar Extreme-Ultraviolet Source. *Michael Lampton, Bruce Margon, Francesco Paresce, Robert Stern, and Stuart Bowyer*. **203**, L71, 8-C9 (1976)
- An X-Ray Survey of BL Lacertae Objects. *Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidsen, Keith O. Mason, and Peter W. Sanford*. **207**, 359, 63-B6 (1976)
- Parameter Estimation in X-Ray Astronomy. *Michael Lampton, Bruce Margon, and Stuart Bowyer*. **208**, 177, 75-G9 (1976)
- Optical Pulsations in HZ Herculis. V. Pulse-resolved Spectrophotometry. *Bruce Margon, Arthur Davidsen, and Stuart Bowyer*. **208**, L35, 77-C7 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. *Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer*. **209**, 525, 95-B4 (1976)
- An Intense Extreme-Ultraviolet Source in Cetus. *Bruce Margon, Michael Lampton, Stuart Bowyer, Robert Stern, and Francesco Paresce*. **210**, L79, 111-C6 (1976)
- MARIONNI, PAUL A. Time-dependent Effects in the Nebular Shell of FG Sagittae. *J. Patrick Harrington and Paul A. Marioni*. **206**, 458, 49-C1 (1976)
- MARK, JAMES W-K. On Density Waves in Galaxies. II. The Turning-Point Problem at the Corotation Region. *James W-K. Mark*. **203**, 81, 1-F13 (1976)
- On Density Waves in Galaxies. III. Wave Amplification by Stimulated Emission. *James W-K. Mark*. **205**, 363, 33-E6 (1976)
- On Density Waves in Galaxies. IV. Wave Amplification through Processes that Remove Angular Momentum from Galactic Disks. *James W-K. Mark*. **206**, 418, 48-G1 (1976)
- MARKERT, T. H. OSO-7 Observations of High Galactic Latitude X-Ray Sources. *T. H. Markert, C. R. Canizares, G. W. Clark, F. K. Li, P. L. Northridge, G. F. Sprott, and G. F. Wargo*. **206**, 265, 45-F13 (1976)
- Observations of Two X-Ray Flares and the Nearby Source MX1716-31. *T. H. Markert, D. E. Backman, and J. E. McClintock*. **208**, L115, 86-F13 (1976)
- MARLBOROUGH, J. M. Evidence for Mass Loss at Moderate to High Velocity in Be Stars. *Theodore P. Snow, Jr. and J. M. Marlborough*. **203**, L87, 8-E2 (1976)
- Intrinsic Linear Polarization of Be Stars as a Function of $V \sin i$. *R. Poeckert and J. M. Marlborough*. **206**, 182, 44-G10 (1976)
- MARSCHER, A. P. On the Aggregate Flux of Weak Point Sources at 1404 MHz. *S. J. Goldstein, Jr., A. P. Marscher, and R. T. Rood*. **210**, 321, 107-D4 (1976)
- MARSH, K. A. Accelerated Gas Outflow in Early-Type Emission-Line Stars. *K. A. Marsh*. **203**, 551, 8-A1 (1976)
- MARSHALL, R. F. Calculations of the Lower Electronic States of CH_3^+ : A Postulated Intermediate in Interstellar Reactions. *R. J. Blint, R. F. Marshall, and William D. Watson*. **206**, 627, 51-A13 (1976)
- MARTIN, P. G. The Origin of Optical Polarization in NGC 1068. *J. R. P. Angel, H. S. Stockman, N. J. Woolf, E. A. Beaver, and P. G. Martin*. **206**, L5, 47-A5 (1976)
- Systematic Variations in the Wavelength Dependence of Interstellar Circular Polarization. *P. G. Martin and J. R. P. Angel*. **207**, 126, 59-D1 (1976)
- Circular Polarization Observations of the Interstellar Magnetic Field. *P. G. Martin and Bruce Campbell*. **208**, 727, 84-B1 (1976)
- Night-to-Night Variations in the Optical Polarization of the Nucleus of NGC 1275. *P. G. Martin, J. R. P. Angel, and J. Maza*. **209**, L21, 92-B8 (1976)
- MARTINS, DONALD H. Photometry of the "Seyfert Sextet" (VV 115) and the Anonymous Galaxy 1558.2+2100. *Donald H. Martins and Guido Chincarini*. **209**, 372, 93-E2 (1976)
- MASHHOON, BAHRAM. On a Spherical Star System with a Collapsed Core. *E. N. Glass and Bahram Mashhoon*. **205**, 570, 35-F9 (1976)
- MASON, D. J. Atomic Nitrogen as a Probe of Physical Conditions in the Interstellar Medium. *M. A. Dopita, D. J. Mason, and W. D. Robb*. **207**, 102, 59-B2 (1976)
- MASON, K. O. Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner*. **207**, 78, 58-G1 (1976)
- Periodic Modulation of Three Galactic X-Ray Sources. *N. E. White, K. O. Mason, H. E. Huckle, P. A. Charles, and P. W. Sanford*. **209**, L119, 101-E5 (1976)
- MASON, KEITH O. The X-Ray Behavior of 3U 1700-37. *Keith O. Mason, Graziella Branduardi, and Peter Sanford*. **203**, L29, 4-E5 (1976)
- An X-Ray Survey of BL Lacertae Objects. *Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidsen, Keith O. Mason, and Peter W. Sanford*. **207**, 359, 63-B6 (1976)
- MASTERS, A. RONALD. Determining the Stellar Masses in the Binary System Containing the Pulsar PSR 1913+16: Is the Companion a Helium Main-Sequence Star? *David H. Roberts, A. Ronald Masters, and W. David Arnett*. **203**, 196, 3-B6 (1976)
- MATHEWS, WILLIAM G. Spherical Winds and Accretion in General Relativity. *George R. Blumenthal and William G. Mathews*. **203**, 714, 10-F1 (1976)
- Stability of Gas Clouds near Quasi-stellar Objects. *William G. Mathews*. **207**, 351, 63-A12 (1976)
- MATHIS, JOHN S. The Spectrum of Portions of Diffuse Nebulae Shadowed from the Central Star. *John S. Mathis*. **207**, 442, 64-A11 (1976)
- MATILSKY, T. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Duxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaile, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper*. **203**, L9, 4-C12 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Duxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper*. **204**, L67, 22-A10 (1976)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. *J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini*. **206**, L99, 52-C4 (1976)

- A Fast Transient Source of Hard X-Rays at High Galactic Latitude. *S. Rappaport, J. Buff, G. Clark, W. H. G. Lewin, T. Matilsky, and J. McClintock.* **206**, L139, 56-D7 (1976)
- The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. *T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod.* **210**, L127, 115-A12 (1976)
- MATILSKY, T. A. *Uhuru* Observations of 4U 1608-52: The "Steady" X-Ray Source Associated with the X-Ray Burst Source Norma. *H. Tananbaum, Lola J. Chaisson, W. Forman, C. Jones, and T. A. Matilsky.* **209**, L125, 101-E13 (1976)
- MATSAKIS, D. N. Observations of the $^{12}\text{C}/^{13}\text{C}$ Ratio in Four Galactic Sources of Formaldehyde. *D. N. Matsakis, M. F. Chui, P. F. Goldsmith, and C. H. Townes.* **206**, L63, 47-E11 (1976)
- MATTHEWS, K. Late-Type Giants and Supergiants in the Galactic Center. *G. Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams.* **205**, L139, 42-C3 (1976)
- Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner.* **207**, 78, 58-G1 (1976)
- Infrared Studies of an Ionized Front Region in the Orion Nebula. *E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner.* **207**, 770, 68-G8 (1976)
- MAURETTE, M. Heavily Irradiated Grains and Neon Isotope Anomalies in Carbonaceous Chondrites. *J. Audouze, J. P. Bibring, J. C. Dran, M. Maurette, and R. M. Walker.* **206**, L185, 56-G10 (1976)
- MAY, JORGE. VLBI Measurements of Jovian S Bursts. *Michel A. Lynch, Thomas D. Carr, and Jorge May.* **207**, 325, 61-D9 (1976)
- MAYER, W. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Doxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delville, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper.* **203**, L9, 4-C12 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper.* **204**, L67, 22-A10 (1976)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. *J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini.* **206**, L99, 52-C4 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson.* **207**, L95, 67-B12 (1976)
- Orbital Elements and Masses for the SMC X-1/Sanduleak 160 Binary System. *F. Primini, S. Rappaport, P. C. Joss, G. W. Clark, W. Lewin, F. Li, W. Mayer, and J. McClintock.* **210**, L71, 111-B10 (1976)
- MAYER, W. F. MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport.* **203**, L21, 4-D11 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport.* **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- MAYFIELD, E. B. Thermodynamic History of A Solar Active Region Observed in X-Rays. *R. G. Teske and E. B. Mayfield.* **210**, L153, 115-C9 (1976)
- MAZA, J. Night-to-Night Variations in the Optical Polarization of the Nucleus of NGC 1275. *P. G. Martin, J. R. P. Angel, and J. Maza.* **209**, L21, 92-B8 (1976)
- MAZA, JOSÉ. Statistics of Extragalactic Supernovae. *José Maza and Sidney van den Bergh.* **204**, 519, 20-B4 (1976)
- MAZE, TSEVI. Precession of the Nodes in Some Triple Stellar Systems. *Tsevi Maze and Jacob Shaham.* **205**, L147, 42-C9 (1976)
- MAZUREK, T. J. Pauli Constriction of the Low-Energy Window in Neutrino Supernova Models. *T. J. Mazurek.* **207**, L87, 67-B4 (1976)
- MCCAMMON, D. Neutral Hydrogen in the Direction of the Small Magellanic Cloud and the Limits on an Extragalactic Soft X-Ray Flux. *D. McCammon, S. S. Meyer, W. T. Sanders, and F. O. Williamson.* **209**, 46, 88-D9 (1976)
- MCCINTOCK, J. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Doxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delville, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper.* **203**, L9, 4-C12 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper.* **204**, L67, 22-A10 (1976)
- A Fast Transient Source of Hard X-Rays at High Galactic Latitude. *S. Rappaport, J. Buff, G. Clark, W. H. G. Lewin, T. Matilsky, and J. McClintock.* **206**, L139, 56-D7 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson.* **207**, L95, 67-B12 (1976)
- Orbital Elements and Masses for the SMC X-1/Sanduleak 160 Binary System. *F. Primini, S. Rappaport, P. C. Joss, G. W. Clark, W. Lewin, F. Li, W. Mayer, and J. McClintock.* **210**, L71, 111-B10 (1976)
- The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. *T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod.* **210**, L127, 115-A12 (1976)
- MCCINTOCK, J. E. MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport.* **203**, L21, 4-D11 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport.* **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. *J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini.* **206**, L99, 52-C4 (1976)
- The 3U 0900-40 Binary System: Orbital Elements and Masses. *S. Rappaport, P. C. Joss, and J. E. McClintock.* **206**, L103, 52-C8 (1976)
- High-Energy X-Ray Observations of the Southern Sky. *G. R. Ricker, M. Gerassimenko, J. E. McClintock, and S. G. Ryckman.* **207**, 333, 61-E5 (1976)
- Observations of Two X-Ray Flares and the Nearby Source MX1716-31. *T. H. Markert, D. E. Backman, and J. E.*

- McClintock. 208, L115, 86-F13 (1976)
- McCLINTOCK, JEFFREY E. Radius of the Vela Pulsar. *George Greenstein and Jeffrey E. McClintock*. 208, L41, 77-C12 (1976)
- McCLINTOCK, W. Ultraviolet Observations of Cool Stars. V. The Local Density of Interstellar Matter. *W. McClintock, R. C. Henry, H. W. Moos, and J. L. Linsky*. 204, L103, 22-D3 (1976)
- McCLURE, ROBERT D. Cyanogen Strengths of Globular Cluster Post-Main-Sequence Stars. *James E. Hesser, F. D. A. Hartwick, and Robert D. McClure*. 207, L113, 67-D2 (1976)
- The Indeterminacy of the Age-Dependence of Metallicities of Nearby Disk Stars. *Robert D. McClure and Beatrice M. Tinsley*. 208, 480, 80-B11 (1976)
- McCLUSKEY, G. E. The Ultraviolet Spectrum of Beta Lyrae. II. *M. Hack, J. B. Hutchings, Y. Kondo, G. E. McCluskey, and M. K. Tulloch*. 206, 777, 54-A11 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. *Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey*. 208, 468, 80-A9 (1976)
- McCLUSKEY, GEORGE E., JR. Mass Flow in the O7f Binary UW Canis Majoris. II. *George E. McCluskey, Jr. and Yoji Kondo*. 208, 760, 84-D7 (1976)
- Mass Flow in the O7f Binary UW Canis Majoris. II.: Addendum. *George E. McCluskey, Jr. and Yoji Kondo*. 210, 277, 106-A9 (1976) (Orig. paper in 208, 760, 84-D7)
- MCCORMACK, P. Iron Hydride: Laboratory Studies and Solar Identification. *P. K. Carroll, P. McCormack, and S. O'Connor*. 208, 903, 86-A4 (1976)
- MCCRAY, RICHARD. An Opaque Shell around Hercules X-1? *Richard McCray and Frederick K. Lamb*. 204, L115, 27-A6 (1976)
- Transfer of X-Rays through a Spherically Symmetric Gas Cloud. *Stephen Hatchett, James Buff, and Richard McCray*. 206, 847, 54-F12 (1976)
- H₂ in Expanding Circumstellar Shells. *David Hollenbach, Shih-I Chu, and Richard McCray*. 208, 458, 79-G13 (1976)
- A New Luminosity Limit for Spherical Accretion onto Compact X-Ray Sources. *Jeremiah P. Ostriker, Richard McCray, Robert Weaver, and A. Yahil*. 208, L61, 82-B1 (1976)
- MCDONALD, F. B. The Interplanetary Acceleration of Energetic Nucleons. *F. B. McDonald, B. J. Teegarden, J. H. Trainor, T. T. von Rosenvinge, and W. R. Webber*. 203, L149, 11-G2 (1976)
- MCDONNELL, M. J. Digital Restoration of an Image of Betelgeuse. *M. J. McDonnell and R. H. T. Bates*. 208, 443, 79-F13 (1976)
- MCGEE, R. X. Evidence for Weak Maser Action in Interstellar Cyanodiacetylene. *N. W. Broten, J. M. MacLeod, T. Oka, L. W. Avery, J. W. Brooks, R. X. McGee, and Lynette M. Newton*. 209, L143, 101-G6 (1976)
- MCGRAW, JOHN T. High-Speed Photometry of Luminosity-Variable DA Dwarfs: R808, GD 99, and G117-B15A. *John T. McGraw and Edward L. Robinson*. 205, L155, 42-D2 (1976)
- Observations of Variable White Dwarfs: One New Variable and 35 Nonvariables. *Edward L. Robinson and John T. McGraw*. 207, L37, 62-D5 (1976)
- The Photometric Properties of the Pulsating White Dwarf R548. *Edward L. Robinson, R. Edward Nather, and John T. McGraw*. 210, 211, 105-C10 (1976)
- BPM 31594: A New Southern-Hemisphere Variable White Dwarf. *John T. McGraw*. 210, L35, 106-D4 (1976)
- MCKECHNIE, S. P. Observations with a High-Resolution Balloon-borne Gamma-Ray Telescope. *S. P. McKechnie, K. E. Mount, and D. Ramsden*. 207, L151, 72-B2 (1976)
- McKEE, C. F. Supernovae in Binary Systems: Erratum. *J. C. Wheeler, R. Lecar, and C. F. McKee*. 209, 961, 101-B12 (1976) (Orig. paper in 200, 145, 64-E1)
- McKEE, CHRISTOPHER F. Tidal Circularization of the Binary X-Ray Sources Hercules X-1 and Centaurus X-3. *Myron Lecar, J. Craig Wheeler, and Christopher F. McKee*. 205, 556, 35-E9 (1976)
- Extragalactic Diffuse Neutral Hydrogen Clouds: Probes of a Hot Intergalactic Medium. *Lennox L. Cowie and Christopher F. McKee*. 209, L105, 101-D2 (1976)
- McKELLAR, A. R. W. The Rotation-Vibration Spectrum of HD: Wavelength and Intensity Measurements of the 3-0, 4-0, 5-0, and 6-0 Electric Dipole Bands. *A. R. W. McKellar, W. Goetz, and D. A. Ramsay*. 207, 663, 66-D6 (1976)
- McKINNEY, W. R. The Far-Ultraviolet (1180-1950 Å) Emission Spectrum of Arcturus. *W. R. McKinney, H. W. Moos, and J. W. Giles*. 205, 848, 40-B5 (1976)
- McLAREN, R. A. Heterodyne Detection of CO₂ Emission Lines and Wind Velocities in the Atmosphere of Venus. *A. L. Betz, M. A. Johnson, R. A. McLaren, and E. C. Sutton*. 208, L141, 87-B4 (1976)
- Nonthermal 10 Micron CO₂ Emission Lines in the Atmospheres of Mars and Venus. *M. A. Johnson, A. L. Betz, R. A. McLaren, E. C. Sutton, and C. H. Townes*. 208, L145, 87-B8 (1976)
- McMULLAN, D. The Far Side of the Crab Nebula: Electronographic and Spectroscopic Observations. *S. Wyckoff, P. A. Wehinger, R. A. E. Fosbury, and D. McMullan*. 206, 254, 45-E12 (1976)
- MEEGAN, C. A. Detection of Nuclear Gamma Rays from Centaurus A. *R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes*. 210, 631, 112-B4 (1976)
- MEESE, J. M. Effects of Stellar Particle Irradiation on Interstellar Grains. *S. J. Czyzak, J. M. Meese, and J. J. Santiago*. 207, 425, 63-G5 (1976)
- MEHAN, R. G. The Unimportance of Pressure Shifts in the Measurement of Gravitational Redshifts in White Dwarfs. *H. L. Shipman and R. G. Mehan*. 209, 205, 90-B6 (1976)
- MEHLMAN, G. Revised Classification of Mg II Levels between 59 and 63 eV. *G. Mehlman, A. W. Weiss, and J. M. Esteve*. 209, 640, 96-D1 (1976)
- MEIER, DAVID L. Have Primeval Galaxies Been Detected? *David L. Meier*. 203, L103, 11-D2 (1976)
- Magnetohydrodynamic Phenomena in Collapsing Stellar Cores. *David L. Meier, Richard I. Epstein, W. David Arnett, and David N. Schramm*. 204, 869, 25-D10 (1976)
- The Optical Appearance of Model Primeval Galaxies. *David L. Meier*. 207, 343, 63-A4 (1976)
- MEIER, R. R. Observations of Helium in the Interplanetary/Interstellar Wind: The Solar Wake Effect: Erratum. *C. S. Weller and R. R. Meier*. 203, 769, 11-C7 (1976) (Orig. paper in 193, 471, 68-F13)
- MEKLER, YURI. Jovian Sodium Plasma. *Aharon Eviatar, Yuri Mekler, and Ferdinand V. Coroniti*. 205, 622, 36-C6 (1976)
- Detection of Ionized Sulfur in the Jovian Magnetosphere. *Irena Kupo, Yuri Mekler, and Aharon Eviatar*. 205, L51, 32-E3 (1976)
- MELROSE, D. B. An Interpretation of Jupiter's Decametric Radiation and the Terrestrial Kilometric Radiation as Direct Amplified Gyroemission. *D. B. Melrose*. 207, 651, 66-C8 (1976)
- MENGEL, JOHN G. A Binary Hypothesis for the Subdwarf B Stars. *John G. Mengel, John Norris, and Peter G. Gross*. 204, 488, 19-G1 (1976)
- MENON, T. K. High-Frequency Structure of Ooty Occultation Sources. I. Sources with Central Components. *T. K. Menon*. 204, 717, 23-G7 (1976)
- MERRILL, K. M. Infrared Observations of Ices and Silicates in Molecular Clouds. *K. M. Merrill, R. W. Russell, and B. T. Soifer*. 207, 763, 68-G1 (1976)
- 2-4 Micron Spectrophotometric Observations of the Galactic Center. *B. T. Soifer, R. W. Russell, and K. M. Merrill*. 207, L83, 67-B1 (1976)
- Model Dust Envelopes around Late-Type Stars. *T. W. Jones and K. M. Merrill*. 209, 509, 95-A1 (1976)
- 2-4 Micron Spectrophotometric Observations of Compact H

- II Regions. *B. T. Soifer, R. W. Russell, and K. M. Merrill.* **210**, 334, 107-E5 (1976)
- MESSINA, A. Propagation of Blast Waves. *A. Cavaliere and A. Messina.* **209**, 424, 94-B1 (1976)
- MESSINA, R. J. Radial-Velocity Variations of Scorpius X-1 Emission Lines. *D. J. Bord, R. J. Messina, D. E. Mook, and W. A. Hiltner.* **206**, L49, 47-D10 (1976)
- MEWALDT, R. A. Isotopic and Elemental Composition of the Anomalous Low-Energy Cosmic-Ray Fluxes. *R. A. Mewaldt, E. C. Stone, S. B. Vidor, and R. E. Vogt.* **205**, 931, 41-A9 (1976)
- The Isotopic Composition of Hydrogen and Helium in Low-Energy Cosmic Rays. *R. A. Mewaldt, E. C. Stone, and R. E. Vogt.* **206**, 616, 51-A1 (1976)
- MEYER, PETER. Quiet-Time Increases of Low-Energy Electrons: The Jovian Origin. *Jacques L'Heureux and Peter Meyer.* **209**, 955, 101-B4 (1976)
- MEYER, S. S. Neutral Hydrogen in the Direction of the Small Magellanic Cloud and the Limits on an Extragalactic Soft X-Ray Flux. *D. McCammon, S. S. Meyer, W. T. Sanders, and F. O. Williamson.* **209**, 46, 88-D9 (1976)
- MICHALSKY, JOSEPH J. Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom.* **203**, L43, 4-F4 (1976)
- Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths: Erratum. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom.* **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L43, 4-F4)
- MICHAUD, GEORGES. Diffusion in Main-Sequence Stars: Radiation Forces, Time Scales, Anomalies. *Georges Michaud, Yves Charland, Sylvie Vaclair, and Gérard Vauclair.* **210**, 447, 108-F10 (1976)
- Diffusion in Stars: Ionization and Abundance Effects. *Thierry Montmerle and Georges Michaud.* **31**, 489, 19-D1 (1976) (Abstr. in **206**, 966, 56-B1)
- MIDDLEDITCH, JOHN. The Geometry of the Eclipse of a Pointlike Star by a Roche-Lobe-filling Companion. *Gary A. Chanan, John Middleitch, and Jerry E. Nelson.* **208**, 512, 80-E1 (1976)
- Studies of Optical Pulsations from HZ Herculis/Hercules X-1: A Determination of the Mass of the Neutron Star. *John Middleitch and Jerry Nelson.* **208**, 567, 81-B2 (1976)
- MIHALAS, DIMITRI. Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. II. Picket-Fence Models. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer.* **203**, 647, 10-A2 (1976)
- Structure and Spectrum of Quiescent Prominences: Energy Balance Spectrum. *J. N. Heasley and Dimitri Mihalas.* **205**, 273, 31-A2 (1976)
- Resonance-Line Transfer with Partial Redistribution. VIII. Solution in the Comoving Frame for Moving Atmospheres. *Dimitri Mihalas, R. A. Shine, P. B. Kunasz, and D. G. Hummer.* **205**, 492, 35-A1 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. III. Effect of Aberration and Advection Terms. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer.* **206**, 515, 49-G5 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. IV. Frequency-dependent Source Functions for Scattering by Atoms and Electrons. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer.* **210**, 419, 108-D8 (1976)
- MILGROM, MORDEHAI. Hydrogen and Helium Lines in Theoretical Models of Scorpius X-1 and Cygnus X-2. *Mordehai Milgrom and J. I. Katz.* **205**, 545, 35-D12 (1976)
- Spectroscopic Properties of HZ Herculis in Model Calculations. *Mordehai Milgrom.* **206**, 869, 55-A9 (1976)
- On the Origin of Optical Emission Lines in Spectra of X-Ray Binaries. *Mordehai Milgrom.* **207**, 902, 70-C5 (1976)
- The Heating Effect in Scorpius X-1. *Mordehai Milgrom.* **208**, 191, 76-A10 (1976)
- MILKEY, R. W. The Fundamental Bands of CO as Chromospheric Indicators in Late-Type Giant Stars. *J. N. Heasley and R. W. Milkey.* **205**, L43, 32-D1 (1976)
- Departures from LTE in the Fundamental Bands of CO in Cool Stars. *D. F. Carbon, R. W. Milkey, and J. N. Heasley.* **207**, 253, 60-F7 (1976)
- Structure and Spectrum of Quiescent Prominences. II. Hydrogen and Helium Spectra. *J. N. Heasley and R. W. Milkey.* **210**, 827, 114-B10 (1976)
- MILKEY, ROBERT W. Sodium Line Formation in Arcturus. II. The Use of Empirical and Opacity Sampling Models and the Nature of Partial Redistribution Effects. *Walter L. Kelch and Robert W. Milkey.* **208**, 428, 79-E12 (1976)
- MILLER, BONNIE D. Negative-Mass Lagging Cores of the Big Bang. *Bonnie D. Miller.* **208**, 275, 78-A4 (1976)
- MILLER, R. H. Predominance of Two-armed Spirals. *R. H. Miller.* **207**, 408, 63-F2 (1976)
- MILONE, E. F. Infrared Photometry of RT Lacertae. *E. F. Milone.* **31**, 93, 12-D1 (1976) (Abstr. in **205**, 657, 36-E12)
- MISRA, R. M. Interaction of Neutron Stars with Black Holes. *R. M. Misra.* **203**, 704, 10-E4 (1976)
- MITCHELL, G. F. Fourier Analysis of Steady-State Reaction Schemes for Interstellar Molecules. *P. J. Kuntz, G. F. Mitchell, and J. Ginsburg.* **209**, 116, 89-B12 (1976)
- MITCHELL, R. J. X-Ray Spectra of Cassiopeia A and Tycho's Supernova Observed with Ariel-5. *P. J. N. Davison, J. L. Culhane, and R. J. Mitchell.* **206**, L37, 47-C12 (1976)
- The X-Ray Structure of the Perseus Cluster of Galaxies. *R. S. Wolff, R. J. Mitchell, P. A. Charles, and J. L. Culhane.* **208**, 1, 74-A4 (1976)
- MODISSETTE, J. L. The Behavior of the Mg II Doublet Emissions near 2800 Å Observed in Late-Type Giants. *Y. Kondo, T. H. Morgan, and J. L. Modisette.* **207**, 167, 59-G2 (1976)
- The Behavior of the Mg II Doublet Features near 2800 Å Observed in F, A, and B Supergiants. *Y. Kondo, T. H. Morgan, and J. L. Modisette.* **209**, 489, 94-F6 (1976)
- MODISSETTE, JERRY L. Possible Mg II Emission in B Stars Observed from Copernicus. *Yoji Kondo, Jerry L. Modisette, Reginald J. Dufour, and Ray S. Whaley.* **206**, 163, 44-F4 (1976)
- Absolute Flux Calibration for the Mg II Observations near 2800 Angstroms. *Yoji Kondo, James E. Duval, Jerry L. Modisette, and T. H. Morgan.* **210**, 713, 113-A6 (1976)
- MOE, O. KJELDSETH. Absolute Solar Ultraviolet Intensities and Their Variations with Solar Activity. I. The Wavelength Region 1750-2100 Å. *G. E. Brueckner, J. -D. F. Bartoe, O. Kjeldseth Moe, and M. E. VanHoosier.* **209**, 935, 100-G13 (1976)
- MOFFET, A. T. Rapid Increase in the Size of 3C 345. *M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart.* **206**, L1, 47-A2 (1976)
- MOFFETT, T. J. Simultaneous Radio and Optical Observations of UV Ceti-Type Flare Stars. *S. R. Spangler and T. J. Moffett.* **203**, 497, 7-C11 (1976)
- UV Ceti Stars: Statistical Analysis of Observational Data. *C. H. Lacy, T. J. Moffett, and D. S. Evans.* **30**, 85, 2-C1 (1976) (Abstr. in **202**, 844, 99-G14)
- MOFFETT, THOMAS J. Comments on the Optical Counterpart of the X-Ray Source 3U 0352+30. *Thomas J. Moffett and Thomas G. Barnes III.* **207**, L185, 72-D7 (1976)
- Comments on the Optical Counterpart of the X-Ray Source 3U 0351+30: Erratum. *Thomas J. Moffett and Thomas G. Barnes III.* **210**, L115, 111-F3 (1976) (Orig. paper in **207**, L185, 72-D7)
- High Time-Resolution Observations of UV Ceti Stars. *Thomas J. Moffett and Bernard W. Bopp.* **31**, 61, 11-G11 (1976) (Abstr. in **205**, 656, 36-E11)
- MOLNAR, M. R. The Ultraviolet Variations of Iota Cassiopeiae. *M. R. Molnar, A. D. Mallama, A. V. Holm, and D. G. Soskey.* **209**, 146, 89-E2 (1976)

- MONCRIEF, VINCENT. Relativistic Fluid Disks in Orbit around Kerr Black Holes. *Leslie G. Fishbone and Vincent Moncrief*. **207**, 962, 70-G10 (1976)
- MONTMERLE, THIERRY. Diffusion in Stars: Ionization and Abundance Effects. *Thierry Montmerle and Georges Michaud*. **31**, 489, 19-D1 (1976) (Abstr. in **206**, 966, 56-B1)
- MOOK, D. E. Optical Observations of WRA 977. *D. J. Bord, D. E. Mook, L. Petro, and W. A. Hiltner*. **203**, 689, 10-D2 (1976)
- Radial-Velocity Variations of Scorpius X-1 Emission Lines. *D. J. Bord, R. J. Messina, D. E. Mook, and W. A. Hiltner*. **206**, L49, 47-D10 (1976)
- MOON, SHIN. Upper Limits to the Quiet-Time Solar Neutron Flux from 10 to 100 MeV. *Shin Moon, George M. Simnett, and R. Stephen White*. **207**, 630, 66-B1 (1976)
- MOORE, D. R. Convective Instability in a Compressible Atmosphere. II. *D. O. Gough, D. R. Moore, E. A. Spiegel, and N. O. Weiss*. **206**, 536, 50-A12 (1976)
- MOORE, ROBERT T. Time-dependent Radiative Cooling of a Hot, Diffuse Cosmic Gas, and the Emergent X-Ray Spectrum. *Paul R. Shapiro and Robert T. Moore*. **207**, 460, 64-C1 (1976)
- MOORE, W. E. X-Ray Spectra of the Puppis A and the Vela Supernova Remnants. *W. E. Moore and G. P. Garmire*. **206**, 247, 45-E5 (1976)
- MOORWOOD, A. F. M. Infrared Line Emission from the Orion Nebula: Detection of [S III] (18.71 μ) and [O III] (88.35 μ). *J. P. Baluteau, E. Bussoletti, M. Anderegg, A. F. M. Moorwood, and N. Coron*. **210**, L45, 106-E1 (1976)
- MOOS, H. W. Ultraviolet Observations of Cool Stars. V. The Local Density of Interstellar Matter. *W. McClintock, R. C. Henry, H. W. Moos, and J. L. Linsky*. **204**, L103, 22-D3 (1976)
- Spectroscopic Survey of the Far Ultraviolet (1160–1700 Å) Emissions of Capella. *R. C. Vitz, H. Weiser, H. W. Moos, A. Weinstein, and E. S. Warden*. **205**, L35, 32-C6 (1976)
- The Far-Ultraviolet (1180–1950 Å) Emission Spectrum of Arcturus. *W. R. McKinney, H. W. Moos, and J. W. Giles*. **205**, 848, 40-B5 (1976)
- MORAN, J. M. The Unusual H₂O Maser Source near Herbig-Haro Object Number 11. *K. Y. Lo, M. Morris, J. M. Moran, and A. D. Haschick*. **204**, L21, 17-B8 (1976)
- 6 Centimeter Observations of Radio Galaxies over a 228 Kilometer Baseline. *R. C. Walker, K. Y. Lo, B. F. Burke, K. J. Johnston, and J. M. Moran*. **208**, 296, 78-B10 (1976)
- MORGAN, T. H. The Behavior of the Mg II Doublet Emissions near 2800 Å Observed in Late-Type Giants. *Y. Kondo, T. H. Morgan, and J. L. Modisette*. **207**, 167, 59-G2 (1976)
- The Behavior of the Mg II Doublet Features near 2800 Å Observed in F, A, and B Supergiants. *Y. Kondo, T. H. Morgan, and J. L. Modisette*. **209**, 489, 94-F6 (1976)
- Absolute Flux Calibration for the Mg II Observations near 2800 Angstroms. *Yoji Kondo, James E. Duval, Jerry L. Modisette, and T. H. Morgan*. **210**, 713, 113-A6 (1976)
- MORGAN, W. W. MK Morphology of a Group of Am Stars. *Helmut A. Abt and W. W. Morgan*. **205**, 446, 34-D9 (1976)
- MK Morphology of a Group of Am Stars: Addendum. *Helmut A. Abt and W. W. Morgan*. **209**, 961, 101-B12 (1976) (Orig. paper in **205**, 446, 34-D9)
- MORIN, J. The Long-Term Intensity Behavior of Centaurus X-3. *E. J. Schreier, K. Swartz, R. Giacconi, G. Fabbiano, and J. Morin*. **204**, 539, 20-D2 (1976)
- MORRIS, M. Observation of the 616–515 Transitions of Acetaldehyde in Sagittarius B2. *W. Gilmore, M. Morris, D. R. Johnson, F. J. Lovas, B. Zuckerman, B. E. Turner, and P. Palmer*. **204**, 43, 13-D10 (1976)
- The Unusual H₂O Maser Source near Herbig-Haro Object Number 11. *K. Y. Lo, M. Morris, J. M. Moran, and A. D. Haschick*. **204**, L21, 17-B8 (1976)
- Cyanoacetylene in Dense Interstellar Clouds. *M. Morris, B. E. Turner, Patrick Palmer, and B. Zuckerman*. **205**, 82, 28-G9 (1976)
- CRL 2688: A Post-Carbon-Star Object and Probable Planetary Nebula Progenitor. *B. Zuckerman, Daya P. Gilra, B. E. Turner, M. Morris, and Patrick Palmer*. **205**, L15, 32-B2 (1976)
- MORRIS, MARK. Detection of H₂O Maser Emission from Four Infrared Sources. *Mark Morris and G. R. Knapp*. **204**, 415, 19-A8 (1976)
- H₂O Maser Emission Associated with T Tauri and Other Regions of Star Formation. *G. R. Knapp and Mark Morris*. **206**, 713, 53-D2 (1976)
- The Extreme High-Velocity H₂O Maser Features in W49 N, W51, and Sagittarius B2. *Mark Morris*. **210**, 100, 104-B6 (1976)
- MORRISON, DAVID. Radiometric Diameters for an Additional 22 Asteroids. *David Morrison and Clark R. Chapman*. **204**, 934, 26-B8 (1976)
- Surface Compositions of the Satellites of Saturn from Infrared Photometry. *David Morrison, Dale P. Cruikshank, Carl B. Pilcher, and George H. Rieke*. **207**, L213, 72-F9 (1976)
- MORRISON, PHILIP. A Spinar Model of Cygnus A. *F. Michael Flasar and Philip Morrison*. **204**, 352, 18-C13 (1976)
- MORTON, D. C. Interstellar Molecular Hydrogen Toward Zeta Puppis. *D. C. Morton and H. L. Dinerstein*. **204**, 1, 13-A4 (1976)
- MORTON, DONALD C. P Cygni Profiles in Zeta Ophiuchi and Zeta Puppis. *Donald C. Morton*. **203**, 386, 6-A10 (1976)
- Velocity Dispersions in Galaxies. V. The Nuclei of M31 and M32. *Donald C. Morton and Bruce G. Elmegreen*. **205**, 63, 28-E13 (1976)
- The H and K Lines of Ca II in the Nucleus and Bulge of M31. *Donald C. Morton and C. David Andereck*. **205**, 356, 33-D10 (1976)
- Copernicus Ultraviolet Observations of Mass-Loss Effects in O and B Stars. *Theodore P. Snow, Jr. and Donald C. Morton*. **32**, 429, 30-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- Mass Ejection from the O4f Star Zeta Puppis. *Henny J. G. L. M. Lamers and Donald C. Morton*. **32**, 715, 34-F1 (1976) (Abstr. in **210**, 624, 110-F3)
- MORTON, WINIFRED A. Components in Interstellar Molecular Hydrogen. *Lyman Spitzer, Jr. and Winifred A. Morton*. **204**, 731, 24-A7 (1976)
- MOTTA, S. Cosmological Turbulence Reexamined. *A. M. Anile, L. Danese, G. De Zotti, and S. Motta*. **205**, L59, 37-A6 (1976)
- Perturbations of the General Robertson-Walker Universes and Angular Variations of the Cosmic Blackbody Radiation. *A. M. Anile and S. Motta*. **207**, 685, 68-A4 (1976)
- MOULD, J. R. M Dwarfs: Band Strengths in Halo and Disk Populations. *J. R. Mould*. **207**, 535, 65-B4 (1976)
- Infrared Observations and the Structure of the Lower Main Sequence. *J. R. Mould and A. R. Hyland*. **208**, 399, 79-C4 (1976)
- The Composition of Kapteyn's Star and the M Subdwarfs. *J. R. Mould*. **210**, 402, 108-C5 (1976)
- MOUNT, K. E. Observations with a High-Resolution Balloon-borne Gamma-Ray Telescope. *S. P. McKechnie, K. E. Mount, and D. Ramsden*. **207**, L151, 72-B2 (1976)
- MOUSCHOVIAS, TELEMACHOS CH. Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. I. Formulation of the Problem and Method of Solution. *Telemachos Ch. Mouschovias*. **206**, 753, 53-G1 (1976)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. II. Results. *Telemachos Ch. Mouschovias*. **207**, 141, 59-E2 (1976)
- Note on the Collapse of Magnetic Interstellar Clouds. *Telemachos Ch. Mouschovias and Lyman Spitzer, Jr.* **210**, 326, 107-D11 (1976)
- MUELLER, MARK W. Propagating Star Formation and Irregular Structure in Spiral Galaxies. *Mark W. Mueller and W.*

- David Arnett. **210**, 670, 112-E1 (1976)
- MUIR, ALEXANDER. The Light Variation of Delta Scuti. *Alexander Muir and William Wehlau*. **205**, 155, 29-E12 (1976)
- MULLAN, D. J. Sympathetic Stellar Flares and Electron Precipitation as Probes of Coronal Structure in Flare Stars. *D. J. Mullan*. **204**, 530, 20-C6 (1976)
- Possible Evidence for the Occurrence of Magnetic Fields of Order 10 Kilogauss in the Red Dwarf Star BY Draconis. *D. J. Mullan and R. A. Bell*. **204**, 818, 25-A1 (1976)
- Sympathetic Stellar Flares and Electron Precipitation as Probes of Coronal Structure in Flare Stars: Erratum. *D. J. Mullan*. **206**, 672, 51-E10 (1976) (Orig. paper in **204**, 530, 20-C6)
- Thermal X-Rays from Stellar Flares: Reevaluation of Scaling from Solar Flares. *D. J. Mullan*. **207**, 289, 61-B1 (1976)
- Flares on White Dwarfs and Gamma-Ray Bursts. *D. J. Mullan*. **208**, 199, 76-B4 (1976)
- Properties of Minimum-Flux Coronae in Dwarfs and Giants. *D. J. Mullan*. **209**, 171, 89-F13 (1976)
- Mean Colors of Stellar Flare Continuum. *D. J. Mullan*. **210**, 702, 112-G9 (1976)
- MÜLLER, E. Matter in Superstrong Magnetic Fields and the Structure of a Neutron Star's Surface. *W. Hillebrandt and E. Müller*. **207**, 589, 65-F3 (1976)
- MUMFORD, G. S. T Aurigae, EX Hydrae, U Geminorum: Additional Times of Minima. *G. S. Mumford*. **210**, 416, 108-D5 (1976)
- MUNRO, R. H. Interpretation of Broad Band Polarimetry of Solar Coronal Transients: Importance of H α Emission. *A. I. Poland and R. H. Munro*. **209**, 927, 100-G2 (1976)
- MURDIN, P. G. Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner*. **207**, 78, 58-G1 (1976)
- MURDOCH, H. S. The Redshift of 0938+119. *E. A. Beaver, R. Harms, C. Hazard, H. S. Murdoch, R. F. Carswell, and P. F. Strittmatter*. **203**, L5, 4-C6 (1976)
- MURDOCH, HUGH S. Observations of High-Redshift QSOs from a Molonglo Faint Source Survey. *Jack A. Baldwin, Harding E. Smith, E. Margaret Burbidge, Cyril Hazard, Hugh S. Murdoch, and David L. Jauncey*. **206**, L83, 52-A13 (1976)
- MURRAY, S. S. Search for X-Ray Emission from BL Lacertae Objects and Nearby Seyfert Galaxies. *M. P. Ulmer and S. S. Murray*. **207**, 364, 63-B11 (1976)
- Search for X-Ray Emission from Globular Clusters Using Uhuru Data. *M. P. Ulmer, S. S. Murray, H. Gursky, and J. N. Bahcall*. **208**, 47, 74-D11 (1976)
- Observations of High-Latitude X-Ray Sources with the Uhuru Satellite. *S. S. Murray and M. P. Ulmer*. **210**, 230, 105-E1 (1976)
- Detection of X-Rays from Algol (β Persei). *H. W. Schnopper, J. P. Delvaille, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Dosssey*. **210**, L75, 111-C1 (1976)
- MURRAY, STEPHEN S. A Measurement of Fluctuations in the X-Ray Background by Uhuru. *Daniel A. Schwartz, Stephen S. Murray, and Herbert Gursky*. **204**, 315, 18-A4 (1976)
- MUSHOTZKY, R. F. UCSD OSO-7 Observations of the Hard X-Ray Spectrum and Variability of Centaurus A. *R. F. Mushotzky, W. A. Baity, Wm. A. Wheaton, and L. E. Peterson*. **206**, L45, 47-D6 (1976)
- MUSMAN, S. Physical Conditions in Granulation. *R. C. Altrock and S. Musman*. **203**, 533, 7-F10 (1976)
- MUSMAN, STEVE. Observations of Penumbral Waves in the Photosphere. *Steve Musman, Alan H. Nye, and John H. Thomas*. **206**, L175, 56-G1 (1976)
- MUSMAN, STEVEN. The Energy Balance of Granulation. *Steven Musman and George Driver Nelson*. **207**, 981, 71-B1 (1976)
- NAFTILAN, STEPHEN A. The Secondary of U Sagittae. *Stephen A. Naftilan*. **206**, 785, 54-B5 (1976)
- NAKAGAWA, Y. Dynamical Response of the Solar Corona. I. Basic Formulations. *Y. Nakagawa and Richard S. Steinolfson*. **207**, 296, 61-B8 (1976)
- NAKAGAWA, YOSHINARI. Dynamical Response of the Solar Corona. II. Numerical Simulations near the Sun. *Richard S. Steinolfson and Yoshinari Nakagawa*. **207**, 300, 61-B12 (1976)
- NARANAN, S. Soft X-Rays from Hercules X-1 during the "Off" State. *G. Fritz, S. Naranan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder*. **207**, L29, 62-C11 (1976)
- Soft X-Ray Emission in Eridanus: An Old Supernova Remnant? *S. Naranan, S. Shulman, H. Friedman, and G. Fritz*. **208**, 718, 84-A5 (1976)
- NARLIKAR, J. V. The Log N -Log S Curve for 3CR Radio Galaxies and the Problem of Identifying Faint Radio Galaxies. *G. R. Burbidge and J. V. Narlikar*. **205**, 329, 33-B8 (1976)
- NATHER, R. EDWARD. The Photometric Properties of the Pulsating White Dwarf R548. *Edward L. Robinson, R. Edward Nather, and John T. McGraw*. **210**, 211, 105-C10 (1976)
- NEFF, JOHN S. Spectrophotometry of R Coronae Borealis during the Minimum of 1974. *Robert S. Patterson, John D. Fix, and John S. Neff*. **204**, 838, 25-B7 (1976)
- NELSON, GEORGE DRIVER. The Energy Balance of Granulation. *Steven Musman and George Driver Nelson*. **207**, 981, 71-B1 (1976)
- About the Proper Choice of the Characteristic Length in the Convection Theory. *Erika Böhm-Vitense and George Driver Nelson*. **210**, 741, 113-C7 (1976)
- NELSON, JERRY. Studies of Optical Pulsations from HZ Herculis/Hercules X-1: A Determination of the Mass of the Neutron Star. *John Middleditch and Jerry Nelson*. **208**, 567, 81-B2 (1976)
- NELSON, JERRY E. The Geometry of the Eclipse of a Pointlike Star by a Roche-Lobe-Filling Companion. *Gary A. Chanan, John Middleditch, and Jerry E. Nelson*. **208**, 512, 80-E1 (1976)
- NELSON, MARK RADFORD. Luminosity Change in DQ Herculis. *Mark Radford Nelson and Edward C. Olson*. **207**, 195, 60-B4 (1976)
- Mass Transfer in DQ Herculis. *Mark Radford Nelson*. **209**, 168, 89-F10 (1976)
- NEUGEBAUER, G. Optical and Infrared Spectrophotometry of 18 Markarian Galaxies. *G. Neugebauer, E. E. Becklin, J. B. Oke, and L. Searle*. **205**, 29, 28-C7 (1976)
- Late-Type Giants and Supergiants in the Galactic Center. *G. Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams*. **205**, L139, 42-C3 (1976)
- Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner*. **207**, 78, 58-G1 (1976)
- Infrared Studies of an Ionized Front Region in the Orion Nebula. *E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner*. **207**, 770, 68-G8 (1976)
- Infrared Observations of Monoceros R2. *S. Beckwith, N. J. Evans II, E. E. Becklin, and G. Neugebauer*. **208**, 390, 79-B9 (1976)
- Far-Infrared Observations of IRC +10216. *M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook*. **208**, 396, 79-C1 (1976)
- One-Millimeter Continuum Emission Studies of Four Molecular Clouds. *W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer*. **209**, 94, 89-A3 (1976)
- NEUPERT, HERMANN E. High-Frequency Stellar Oscillations. XI. The ZZ Ceti Star BPM 30551. *James E. Hesser, Barry*

- M. Lasker, and Hermann E. Neupert. **209**, 853, 100-A8 (1976)
- NEUPERT, W. M. The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
- NEWELL, BARRY. Gaps in the Blue Horizontal Branch. *Barry Newell and J. A. Graham*. **204**, 804, 24-G1 (1976)
- Evidence for a Central Massive Object in the X-Ray Cluster M15. *Barry Newell, G. S. Da Costa, and John Norris*. **208**, L55, 82-A10 (1976)
- NEWMAN, MICHAEL J. Solar Models of Low Neutrino Counting Rate: Energy Transport by Processes Other than Radiative Transfer. *Michael J. Newman and William A. Fowler*. **207**, 601, 65-G1 (1976)
- On the Efficient Computation of Sequences of Solar Models. *Michael J. Newman*. **208**, 224, 76-D1 (1976)
- s-Process Studies: Branching and the Time Scale. *Richard A. Ward, Michael J. Newman, and Donald D. Clayton*. **31**, 33, 11-E1 (1976) (Abstr. in **205**, 655, 36-E10)
- NEWTON, LYNETTE M. Evidence for Weak Maser Action in Interstellar Cyanodiacetylene. *N. W. Broten, J. M. MacLeod, T. Oka, L. W. Avery, J. W. Brooks, R. X. McGee, and Lynette M. Newton*. **209**, L143, 101-G6 (1976)
- NEY, E. P. The Early Infrared Development of Nova Cygni 1975. *J. S. Gallagher and E. P. Ney*. **204**, L35, 17-C7 (1976)
- NI, WEI-TOU. Theoretical Frameworks for Testing Relativistic Gravity. V. Post-Newtonian Limit of Rosen's Theory. *David L. Lee, Carlton M. Caves, Wei-Tou Ni, and Clifford M. Will*. **206**, 555, 50-C3 (1976)
- NIELL, A. E. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. *J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell*. **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. *T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr.* **206**, L107, 52-C12
- NIEMELA, VIRPI S. A Change in the Optical Spectrum of Zeta Puppis. *Peter S. Conti and Virpi S. Niemela*. **209**, L37, 92-C9 (1976)
- NOERDLINGER, P. D. Transfer of Line Radiation in Differentially Expanding Atmospheres. IV. The Two-Level Atom in Plane-parallel Geometry Solved by the Feautrier Method: Erratum. *P. D. Noerdlinger and G. B. Rybicki*. **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 651, 71-D5)
- NOLT, IRA G. Three-Color Photometry of HDE 226868: The Optical Counterpart of Cygnus X-1. *Daniel F. Lester, Ira G. Nolt, Shirley A. Stearns, Peter Straton, and James V. Radostitz*. **205**, 855, 40-B12 (1976)
- NORBECK, JOSEPH M. Interstellar COH⁺. *Eric Herbst, Joseph M. Norbeck, Phillip R. Certain, and William Klemperer*. **207**, 110, 59-B11 (1976)
- NORDSIECK, KENNETH H. Optical Polarization Models of Quasi-stellar Objects and BL Lacertae Objects. *Kenneth H. Nordsieck*. **209**, 653, 98-A4 (1976)
- NORMAN, ERIC B. Consistency of Cosmic-Ray Composition, Acceleration Mechanism and Supernova Models. *Kem L. Hainebach, Eric B. Norman, and David N. Schramm*. **203**, 245, 3-F1 (1976)
- NORRIS, JOHN. A Binary Hypothesis for the Subdwarf B Stars. *John G. Mengel, John Norris, and Peter G. Gross*. **204**, 488, 19-G1 (1976)
- The Giant Branch of Omega Centauri. I. Abundance Variations Due to Mixing. *M. S. Bessell and John Norris*. **208**, 369, 79-A1 (1976)
- Evidence for a Central Massive Object in the X-Ray Cluster M15. *Barry Newell, G. S. Da Costa, and John Norris*. **208**, L55, 82-A10 (1976)
- The Age and Chemical Composition of the LMC Cluster NGC 2209. *S. C. B. Gascoigne, John Norris, M. S. Bessell, A. R. Hyland, and N. Visvanathan*. **209**, L25, 92-B11 (1976)
- The Giant Branch of ω Centauri. I. Abundance Variations Due to Mixing: Erratum. *M. S. Bessell and John Norris*. **210**, 618, 110-E10 (1976) (Orig. paper in **208**, 369, 79-A1)
- NORTHBRIDGE, P. L. OSO-7 Observations of High Galactic Latitude X-Ray Sources. *T. H. Markert, C. R. Canizares, G. W. Clark, F. K. Li, P. L. Northridge, G. F. Sprott, and G. F. Wargo*. **206**, 265, 45-F13 (1976)
- NOTTALE, L. Redshift Anomaly in Associations of Clusters of Galaxies? *L. Nottale*. **208**, L103, 86-F2 (1976)
- NOVICK, R. New Observations of Pulsed X-Ray Emission from NP 0532. *H. L. Kestenbaum, W. Ku, R. Novick, and R. S. Wolff*. **203**, L57, 8-B11 (1976)
- Energy Dependence of the Size of the X-Ray Source in the Crab Nebulae. *W. Ku, H. L. Kestenbaum, R. Novick, and R. S. Wolff*. **204**, L77, 22-B5 (1976)
- Search for X-Ray Line Emission from A0620-00. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **208**, L27, 71-B13 (1976)
- Measurement of the X-Ray Polarization of the Crab Nebula. *M. C. Weisskopf, G. G. Cohen, H. L. Kestenbaum, K. S. Long, R. Novick, and R. S. Wolff*. **208**, L125, 86-G8 (1976)
- The Graphite Crystal X-Ray Spectrometer on OSO-8. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **210**, 805, 114-A2 (1976)
- NOWOTNY, EKKEHARD. A Matter and Radiation Filled Universe: Consequences of the Astronomical Observations. *Ekkehard Nowotny*. **206**, 402, 48-E12 (1976)
- NOXON, J. F. Detection of O₂ Dayglow Emission from Mars and the Martian Ozone Abundance. *J. F. Noxon, W. A. Traub, N. P. Carleton, and P. Connes*. **207**, 1025, 71-E13 (1976)
- NOYES, R. W. Extreme-Ultraviolet Transients Observed at the Solar Pole. *G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza*. **203**, 528, 7-F5 (1976)
- NYE, ALAN H. Solar Magneto-atmospheric Waves. I. An Exact Solution for a Horizontal Magnetic Field. *Alan H. Nye and John H. Thomas*. **204**, 573, 20-F9 (1976)
- Solar Magneto-atmospheric Waves. II. A Model for Running Penumbra Waves. *Alan H. Nye and John H. Thomas*. **204**, 582, 20-G4 (1976)
- Observations of Penumbra Waves in the Photosphere. *Steve Musman, Alan H. Nye, and John H. Thomas*. **206**, L175, 56-G1 (1976)
- O'CONNELL, R. F. Energy Spectrum of Hydrogen-like Atoms in a Strong Magnetic Field: Erratum. *G. L. Surmelian and R. F. O'Connell*. **204**, 311, 16-D8 (1976) (Orig. paper in **190**, 741, 37-D13)
- O'CONNELL, ROBERT W. Cool Stellar Populations in E/S0 Galaxies and a Possible Outburst in M87. *Robert W. O'Connell*. **203**, L1, 4-C2 (1976)
- Galaxy Spectral Synthesis. I. Stellar Populations in the Nuclei of Giant Ellipticals. *Robert W. O'Connell*. **206**, 370, 48-C7 (1976)
- O'CONNOR, S. Iron Hydride: Laboratory Studies and Solar Identification. *P. K. Carroll, P. McCormack, and S. O'Connor*. **208**, 903, 86-A4 (1976)
- O'DELL, S. L. Comments on "The Composite Hubble Diagram". *S. L. O'Dell and D. H. Roberts*. **210**, 294, 107-B5 (1976)
- OEGERLE, WILLIAM R. Neutral Helium Emission in Wolf-Rayet Envelopes. *William R. Oegerle and David Van Blerkom*. **206**, L50, 44-E5 (1976)
- A Model for P Cygni Based on the He I Spectrum. *William R. Oegerle and David Van Blerkom*. **208**, 453, 79-G8 (1976)
- OEMLER, A., JR. 3C 66 A: A BL Lacertae Object in a Distant,

- Rich Cluster of Galaxies. *H. R. Butcher, A. Oemler, Jr., S. Tapia, and M. Tarenghi.* **209**, L11, 92-A10 (1976)
- OEMLER, AUGUSTUS, JR. The Structure of Elliptical cD Galaxies. *Augustus Oemler, Jr.* **209**, 693, 98-D3 (1976)
- O'GALLAGHER, J. J. Time Dispersion of Energetic Solar Particles: Unexpected Velocity and Species Dependence. *J. J. O'Gallagher, D. Hovestadt, B. Klecker, G. Gloeckler, and C. Y. Fan.* **209**, L97, 97-A13 (1976)
- ÖGELMAN, H. A Search of the SAS-2 Data for Pulsed Gamma-Ray Emission from Radio Pulsars. *H. Ögelman, C. E. Fichtel, D. A. Kniffen, and D. J. Thompson.* **209**, 584, 95-F9 (1976)
- ÖGELMAN, HAKKI B. The Origin of OB Associations and Extended Regions of High-Energy Activity in the Galaxy through Supernova Cascade Processes. *Hakki B. Ögelman and Stephen P. Maran.* **209**, 124, 89-C6 (1976)
- OHRING, GEORGE. The Ammonia Profile in the Atmosphere of Saturn from Inversion of Its Microwave Emission Spectrum. *George Ohring and Avraham Lacser.* **206**, 622, 51-A8 (1976)
- OKA, T. Detection of the Heavy Interstellar Molecule Cyanodiacetylene. *L. W. Avery, N. W. Broten, J. M. MacLeod, T. Oka, and H. W. Kroto.* **205**, L173, 42-E4 (1976)
- Evidence for Weak Maser Action in Interstellar Cyanodiacetylene. *N. W. Broten, J. M. MacLeod, T. Oka, L. W. Avery, J. W. Brooks, R. X. McGee, and Lynette M. Newton.* **209**, L143, 101-G6 (1976)
- OKE, J. B. Optical and Infrared Spectrophotometry of 18 Markarian Galaxies. *G. Neugebauer, E. E. Becklin, J. B. Oke, and L. Searle.* **205**, 29, 98-C7 (1976)
- Color Gradients in the Nuclear Region of M31. *Trinh X. Thuan and J. B. Oke.* **205**, 360, 33-E3 (1976)
- 3C 68.1: A Very Red QSO with an Intermediate Redshift. *A. Boksenberg, R. F. Carswell, and J. B. Oke.* **206**, L121, 56-C2 (1976)
- Seyfert Galaxies with Strong Fe II Emission. *J. B. Oke and G. A. Shields.* **207**, 713, 68-C4 (1976)
- Spectrophotometry of the X-Ray Binary HZ Herculis. *J. B. Oke.* **209**, 547, 95-C13 (1976)
- OKOYE, S. E. A Model for the Centimeter-Excess Radio Sources. *S. E. Okoye.* **209**, 362, 93-D6 (1976)
- OLSON, E. C. U Cephei: A Mass-Transfer Event. *I. E. C. Olson.* **204**, 141, 14-E9 (1976)
- OLSON, EDWARD C. Luminosity Change in DQ Herculis. *Mark Radford Nelson and Edward C. Olson.* **207**, 195, 60-B4 (1976)
- U Cephei: A Mass-Transfer Event. II. Observations. *Edward C. Olson.* **31**, 1, 11-A2 (1976) (abstr. in **205**, 655, 36-E10)
- OLSON, GORDON L. Nucleosynthesis and Star Formation of the Galaxy and Magellanic Clouds. *Gordon L. Olson and Jose H. Peña.* **205**, 527, 35-C8 (1976)
- ORMES, J. F. The Isotopic Composition of Cosmic Rays with $5 \leq Z \leq 26$. *A. J. Fisher, F. A. Hagen, R. C. Maehl, J. F. Ormes, and J. F. Arens.* **205**, 938, 41-B3 (1976)
- ORRALL, F. Q. Lyman-Alpha Emission from Nonthermal Proton Beams. *F. Q. Orrall and J. B. Zirker.* **208**, 618, 81-F1 (1976)
- ORTH, CHARLES D. Secondary Cosmic-Ray e^+ from 1 to 100 GeV in the Upper Atmosphere and Interstellar Space, and Interpretation of a Recent e^+ Flux Measurement. *Charles D. Orth and Andrew Buffington.* **206**, 312, 46-C7 (1976)
- OSMER, PATRICK S. On the Abundances of Helium, Nitrogen, and Oxygen in the Planetary Nebulae of the Magellanic Clouds. *Patrick S. Osmer.* **203**, 352, 5-F2 (1976)
- The Emission-Line Spectra of Nine Newly Discovered, Optically Selected Quasars with $2.5 < z < 3.1$. *Patrick S. Osmer and Malcolm G. Smith.* **210**, 267, 105-G10 (1976)
- OSTER, LUDWIG. Pulsar Geometries. II. Decomposition of the Radiation Pattern. *Ludwig Oster and Wolfgang Sieber.* **203**, 233, 3-E1 (1976)
- Pulsar Geometries. III. The Hollow-Cone Model. *Ludwig Oster and Wolfgang Sieber.* **210**, 220, 105-D5 (1976)
- OSTERBROCK, D. E. Markarian 376: A Seyfert Galaxy with Strong Fe II Emission. *D. E. Osterbrock.* **203**, 329, 5-D7 (1976)
- The Peculiar Object He 2-467. *J. H. Lutz, T. E. Lutz, J. B. Kaler, D. E. Osterbrock, and S. A. Gregory.* **203**, 481, 7-B9 (1976)
- Electron Temperature in the Elliptical Galaxy NGC 1052. *A. T. Koski and D. E. Osterbrock.* **203**, L49, 8-B5 (1976)
- The Optical Spectra of 3C 227 and Other Broad-Line Radio Galaxies. *D. E. Osterbrock, A. T. Koski, and M. M. Phillips.* **206**, 898, 55-D1 (1976)
- Variation of the Spectrum of the Seyfert Galaxy NGC 7603. *J. E. Tohline and D. E. Osterbrock.* **210**, L117, 115-A2 (1976)
- OSTRIKER, JEREMIAH P. A New Luminosity Limit for Spherical Accretion onto Compact X-Ray Sources. *Jeremiah P. Ostriker, Richard McCray, Robert Weaver, and A. Yahil.* **208**, L61, 82-B1 (1976)
- OTGONSUREN, O. Abundances of $Z > 52$ Nuclei in Galactic Cosmic Rays: Long-Term Averages Based on Studies of Pallasites. *O. Otgonsuren, V. P. Perelygin, S. G. Stetsenko, N. N. Gavrilova, C. Fiéni, and P. Pellas.* **210**, 258, 105-G1 (1976)
- OVENDEN, MICHAEL W. On the Nonexpansion of the Galaxy. *Michael W. Owendon and John Byl.* **206**, 57, 43-E4 (1976)
- OWEN, FRAZER N. Compact Radio Sources in the Directions of Rich Clusters of Galaxies. *Frazer N. Owen and Lawrence Rudnick.* **203**, 307, 5-B13 (1976)
- Radio Emission from the X-Ray Source A02620-00. *Frazer N. Owen, Thomas J. Balonek, John Dickey, Yervant Terzian, and S. T. Gottesman.* **203**, L15, 4-D6 (1976)
- Head-Tail Radio Sources in Clusters of Galaxies. *Lawrence Rudnick and Frazer N. Owen.* **203**, L107, 11-D5 (1976)
- Radio Sources with Wide-Angle Tails in Abell Clusters of Galaxies. *Frazer N. Owen and Lawrence Rudnick.* **205**, L1, 32-A2 (1976)
- The Detection of Radio Emission from the RS CVn Binary HR 1099. *Frazer N. Owen, T. W. Jones, and D. M. Gibson.* **210**, L27, 106-C10 (1976)
- OWEN, T. Ethane and Acetylene Abundances in the Jovian Atmosphere. *A. Tokunaga, R. F. Knacke, and T. Owen.* **209**, 294, 91-B2 (1976)
- OWEN, TOBIAS. Laboratory Band Strengths of Methane and Their Application to the Atmospheres of Jupiter, Saturn, Uranus, Neptune, and Titan. *Barry L. Lutz, Tobias Owen, and Robert D. Cess.* **203**, 541, 7-G4 (1976)
- On the 6825 Å Band of Methane. *Barry L. Lutz and Tobias Owen.* **208**, L99, 82-D9 (1976)
- PACHOLCZYK, A. G. In Situ Particle Acceleration and Physical Conditions in Radio Tail Galaxies. *A. G. Pacholczyk and John S. Scott.* **203**, 313, 5-C6 (1976)
- Theory of the Polarization of Pulsar Radio Radiation. *W. J. Cocke and A. G. Pacholczyk.* **204**, L13, 17-A13 (1976)
- Physics of Compact Radio Sources. I. Particle Acceleration and Flux Variations. *A. G. Pacholczyk and John S. Scott.* **210**, 311, 107-C8 (1976)
- PAGE, DON N. Gamma Rays from Primordial Black Holes. *Don N. Page and S. W. Hawking.* **206**, 1, 43-A4 (1976)
- PAGE, THORNTON. Far-Ultraviolet Brightness of Nebulae in Cygnus. *George R. Carruthers and Thornton Page.* **205**, 397, 33-G12 (1976)
- PAKULL, M. The Two Optical Candidates of LMC X-2. *M. Pakull and N. V. Vidal.* **207**, 329, 61-E1 (1976)
- PALMER, P. Observation of the 616-515 Transitions of Acetaldehyde in Sagittarius B2. *W. Gilmore, M. Morris, D. R. Johnson, F. J. Lovas, B. Zuckerman, B. E. Turner, and P. Palmer.* **204**, 43, 13-D10 (1976)
- PALMER, PATRICK. Cyanoacetylene in Dense Interstellar Clouds. *M. Morris, B. E. Turner, Patrick Palmer, and B. Zuckerman.* **205**, 82, 28-G9 (1976)
- CRL 2688: A Post-Carbon-Star Object and Probable

- Planetary Nebula Progenitor. *B. Zuckerman, Daya P. Gilra, B. E. Turner, M. Morris, and Patrick Palmer.* **205**, L15, 32-B2 (1976)
- PALMIERI, T. An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. *F. Seward, G. Burginoy, R. Grader, R. Hill, T. Palmieri, P. Stoering, and A. Toor.* **205**, 238, 30-E8 (1976)
- PALMIERI, T. M. Evidence for "Thermal" X-Rays from the Crab Nebula. *A. Toor, T. M. Palmieri, and F. D. Seward.* **207**, 96, 59-A9 (1976)
- PANDHARIPANDE, V. R. Neutron Star Structure: Theory, Observation, and Speculation. *V. R. Pandharipande, D. Pines, and R. A. Smith.* **208**, 550, 80-G13 (1976)
- PANEK, ROBERT J. Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIII. The Resonance Lines of Triply Ionized Carbon and Silicon in the Spectra of Hot Stars. *Robert J. Panek and Blair D. Savage.* **206**, 167, 44-F8 (1976)
- PARESCHE, FRANCESCO. Discovery of a Nonsolar Extreme-Ultraviolet Source. *Michael Lampton, Bruce Margon, Francesco Paresce, Robert Stern, and Stuart Bowyer.* **203**, L71, 8-C9 (1976)
- Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources. *Patrick Henry, Stuart Bowyer, Michael Lampton, Francesco Paresce, and Raymond Cruddace.* **205**, 426, 34-C3 (1976)
- Upper Limits to the Interstellar Radiation Field between 775 and 1050 Å. *Francesco Paresce and Stuart Bowyer.* **207**, 432, 64-A1 (1976)
- Observations of Interstellar Helium with a Gas Absorption Cell: Limits on the Bulk Velocity of the Interstellar Medium. *Jay Freeman, Francesco Paresce, Stuart Bowyer, and Michael Lampton.* **208**, 747, 84-C7 (1976)
- An Intense Extreme-Ultraviolet Source in Cetus. *Bruce Margon, Michael Lampton, Stuart Bowyer, Robert Stern, and Francesco Paresce.* **210**, L79, 111-C6 (1976)
- PARKER, E. N. Hydraulic Concentration of Magnetic Fields in the Solar Photosphere. III. Fields of One or Two Kilogauss. *E. N. Parker.* **204**, 259, 15-G11 (1976)
- On the Physical Interpretation of the Cosmic-Ray Transport Equations. *J. R. Jokipii and E. N. Parker.* **208**, 220, 76-C11 (1976)
- Hydraulic Concentration of Fields in the Solar Photosphere. IV. Evolution of Fields near Equipartition. *E. N. Parker.* **210**, 810, 114-A7 (1976)
- Hydraulic Concentration of Fields in the Solar Photosphere. V. Dynamical Effects in a Stratified Atmosphere. *E. N. Parker.* **210**, 816, 114-A13 (1976)
- PARKINSON, W. H. The Mg II *h* and *k* Lines. I. Absolute Center and Limb Measurements of the Solar Profiles. *J. L. Kohl and W. H. Parkinson.* **205**, 599, 36-A10 (1976)
- PARKS, ALLEN D. Electron Impact Excitation Cross Sections for Complex Ions. III. Highly Charged Ions with Three Valence Electrons. *Allen D. Parks and Douglas H. Sampson.* **209**, 312, 91-C6 (1976)
- PARSIGNAULT, D. R. Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. *J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schriever.* **205**, L127, 42-B6 (1976)
- Improved Position for the X-Ray Source Associated with the Globular Cluster NGC 6441. *J. E. Grindlay, H. Schnopper, E. Schreier, H. Gursky, and D. R. Parsignault.* **206**, L23, 47-B11 (1976)
- On the Stability of the Period of Cygnus X-3. *D. R. Parsignault, E. Schreier, J. Grindlay, and H. Gursky.* **209**, L73, 96-G5 (1976)
- PARSONS, S. B. Skylab Ultraviolet Stellar Spectra: Cool Stars with Hot Secondaries. *S. B. Parsons, J. D. Wray, Y. Kondo, K. G. Henize, and G. F. Benedict.* **203**, 435, 6-E9 (1976)
- Skylab Ultraviolet Stellar Spectra: A New White Dwarf, HD 149499. *S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and M. Laget.* **206**, L71, 47-F4 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. *Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey.* **208**, 468, 80-A9 (1976)
- PARSONS, SIDNEY B. Asymmetries in the Absorption Lines of Manganese Stars. *Myron A. Smith and Sidney B. Parsons.* **205**, 430, 34-C7 (1976)
- PATTERSON, N. P. The Quiet Sun Chromospheric Network Observed from Skylab. *U. Feldman, G. A. Doschek, and N. P. Patterson.* **209**, 270, 90-G6 (1976)
- PATTERSON, ROBERT S. Spectrophotometry of R Coronae Borealis during the Minimum of 1974. *Robert S. Patterson, John D. Fix, and John S. Neff.* **204**, 838, 25-B7 (1976)
- PAUL, J. Distribution of Gas, Magnetic Fields, and Cosmic Rays in the Galaxy. *J. Paul, M. Cassé, and C. J. Cesarsky.* **207**, 62, 58-E12 (1976)
- Gamma-Ray Production by the Inverse Compton Process in Interstellar Space. *P. G. Shukla and J. Paul.* **208**, 893, 85-G8 (1976)
- PAULINY-TOOTH, I. I. K. Rapid Increase in the Size of 3C 345. *M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart.* **206**, L1, 47-A2 (1976)
- Observations of a Radio Source in the Nucleus of M81 with Dimensions Less than 1300 Astronomical Units 12:50 11/05/76. *K. I. Kellermann, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, and A. Witzel.* **210**, L121, 115-A6 (1976)
- PAYNE, R. R. Further Changes in the Distribution of Density and Radio Scattering in the Solar Corona in 1973. *J. M. Weisberg, J. M. Rankin, R. R. Payne, and C. C. Counselman III.* **209**, 252, 90-F1 (1976)
- PAYNE, ROBERT R. Timing Results for Seven Pulsars. *Gordon E. Gullahorn, Robert R. Payne, John M. Rankin, and David W. Richards.* **205**, L151, 42-C13 (1976)
- PEDIGO, R. DARYL. A Higher Stability Limit for Neutron Stars. *Richard L. Bowers, A. M. Gleeson, and R. Daryl Pedigo.* **205**, 261, 30-G4 (1976)
- PEEBLES, P. J. E. The Peculiar Velocity Field in the Local Supercluster. *P. J. E. Peebles.* **205**, 318, 33-A11 (1976)
- A Cosmic Virial Theorem. *P. J. E. Peebles.* **205**, L109, 42-A2 (1976)
- Bright Galaxies in Rich Clusters: Test of a Statistical Model for Magnitude Distributions. *M. J. Geller and P. J. E. Peebles.* **206**, 939, 55-G1 (1976)
- On the Significance of the Luminosities of First-ranked Members of Sparse Groups of Galaxies. *Paul L. Schechter and P. J. E. Peebles.* **209**, 670, 98-B8 (1976)
- PEERY, BENJAMIN F., JR. Identification of Novel Molecules in the Spectrum of 19 Piscium. *Robert S. Wojcik and Benjamin F. Peery, Jr.* **31**, 75, 12-B1 (1976) (Abstr. in **205**, 656, 36-E11)
- PEIMBERT, M. On the Number of Planetary Nebulae in our Galaxy. *D. Alloin, C. Cruz-González, and M. Peimbert.* **205**, 74, 28-G1 (1976)
- PEIMBERT, MANUEL. Chemical Composition of H II Regions in the Small Magellanic Cloud and the Pregalactic Helium Abundance. *Manuel Peimbert and Silvia Torres-Peimbert.* **203**, 581, 9-C1 (1976)
- PELLAS, P. Abundances of $Z > 52$ Nuclei in Galactic Cosmic Rays: Long-Term Averages Based on Studies of Pallasites. *O. Otgonsuren, V. P. Pereygin, S. G. Stetsenko, N. N. Gavrilova, C. Fiéni, and P. Pellas.* **210**, 258, 105-G1 (1976)
- PELLERIN, C. J. Cosmic-Ray Positron and Negatron Spectra between 20 and 800 MeV Measure in 1974. *R. C. Hartman and C. J. Pellerin.* **204**, 927, 26-B1 (1976)
- PEÑA, JOSE H. Nucleosynthesis and Star Formation of the Galaxy and Magellanic Clouds. *Gordon L. Olson and Jose H. Peña.* **205**, 527, 35-C8 (1976)

- PENCE, W. K-Corrections for Galaxies of Different Morphological Types. *W. Pence*. **203**, 39, 1-C13 (1976)
- PENCE, W. D. Type I Supernovae as Cosmological Clocks. *G. de Vaucouleurs and W. D. Pence*. **209**, 687, 98-C11 (1976)
- PENSTON, M. V. The Variability and Absorption of the X-Ray Emission from NGC 4151. *J. C. Ives, P. W. Sanford, and M. V. Penston*. **207**, L159, 72-B9 (1976)
- PENZIAS, A. A. Isotope Abundances in Interstellar Molecular Clouds. *P. G. Wannier, A. A. Penzias, R. A. Linke, and R. W. Wilson*. **204**, 26, 13-C6 (1976)
- Isotopic Abundances in Interstellar Carbon Monosulfide. *R. W. Wilson, A. A. Penzias, P. G. Wannier, and R. A. Linke*. **204**, L135, 27-C1 (1976)
- The Abundance Ratio $^{17}\text{O}/^{18}\text{O}$ in Dense Interstellar Clouds. *P. G. Wannier, R. Lucas, R. A. Linke, P. J. Encrenaz, A. A. Penzias, and R. W. Wilson*. **205**, L169, 42-E1 (1976)
- PERELYGIN, V. P. Abundances of $Z > 52$ Nuclei in Galactic Cosmic Rays: Long-Term Averages Based on Studies of Pallasites. *O. Otgonsuren, V. P. Perelygin, S. G. Stetsenko, N. N. Gavrilo, C. Fiéni, and P. Pellas*. **210**, 258, 105-G1 (1976)
- PERONA, GIOVANNI E. A Theoretical Analysis of the Semiannual Component in the Heliolatitude Dependence of High-Energy Galactic Cosmic Rays. *Giovanni E. Perona and Ester Antonucci*. **207**, 989, 71-B9 (1976)
- PERRENOD, STEPHEN C. X-Ray Heating. II. The Reflection Effect in Scorpius X-1. *Stephen C. Perrenod*. **206**, 876, 55-B2 (1976)
- PERRY, JUDITH. On the Masses of the Quasi-stellar Objects. *Geoffrey Burbidge and Judith Perry*. **205**, L55, 37-A2 (1976)
- PERSSON, S. The 10 Micron Silicate Feature in Southern H II Regions. *S. Persson, Jay A. Frogel, and Marc Aaronson*. **208**, 753, 84-C13 (1976)
- PÉŠIĆ, D. S. Rotational Analysis of the First Negative System of $^{12}\text{C}^{18}\text{O}^+$. *J. D. Janić and D. S. Péšić*. **209**, 642, 96-D3 (1976)
- PETERS, GERALDINE J. The Chemical Composition of Gamma Pegasi. *Geraldine J. Peters*. **30**, 551, 10-A1 (1976) (Abstr. in **205**, 310, 31-C12)
- PETERS, WILLIAM L. Dynamics of CO Molecular Clouds in the Galaxy. *Frank N. Bash and William L. Peters*. **205**, 786, 39-C11 (1976)
- PETERSON, B. A. The BL Lacertae Object AP Librae in 1975. *B. A. Peterson, A. W. Rodgers, E. J. Wampler, and M. J. Disney*. **207**, L17, 62-B9 (1976)
- Spectroscopy of QSO Pairs. *J. G. Bolton, B. A. Peterson, Beverley J. Wills, and D. Wills*. **210**, L1, 106-B2 (1976)
- PETERSON, BRADLEY M. The Emission Lines in the Vicinity of Hydrogen-Alpha in dMe Flare Star Spectra. *Simon P. Worden and Bradley M. Peterson*. **206**, L145, 56-E1 (1976)
- PETERSON, BRUCE A. Redshifts of Southern Radio Sources. *Bruce A. Peterson, David L. Jauncey, Alan E. Wright, and James J. Condon*. **207**, L5, 62-A6 (1976)
- PETERSON, CHARLES J. Motions of the Stars and the Excited Gas in the Barred Spiral Galaxy NGC 3351. *Charles J. Peterson, Vera C. Rubin, W. Kent Ford, Jr., and Norbert Thonnard*. **208**, 662, 83-C3 (1976)
- PETERSON, F. W. A Continuous Injection Model for the Supernova Remnants Cassiopeia A and the Crab Nebula. *F. W. Peterson*. **210**, 723, 113-B3 (1976)
- PETERSON, L. E. UCSD OSO-7 Observations of the Hard X-Ray Spectrum and Variability of Centaurus A. *R. F. Mushotzky, W. A. Baity, Wm. A. Wheaton, and L. E. Peterson*. **206**, L45, 47-D6 (1976)
- PETERSON, R. J. Thermonuclear Reaction Rates Derived from Thick-Target Yields. *N. A. Roughton, M. J. Fritts, R. J. Peterson, C. S. Zaidins, and C. J. Hansen*. **205**, 302, 31-C4 (1976)
- PETERSON, RUTH. An Explanation of the Super-Metal-rich Phenomenon in Field K Giants as an Effect of a Difference in Surface Temperature. *Ruth Peterson*. **30**, 61, 1-G1 (1976) (Abstr. in **202**, 844, 99-G14)
- PETERSON, RUTH C. Constraints on Nucleosynthesis Imposed by Extremely Metal-poor Stars. *Ruth C. Peterson*. **206**, 800, 54-C6 (1976)
- Overabundances of Sodium and the Heavy Isotopes of Magnesium in Strong-lined Elliptical Galaxies. *Ruth C. Peterson*. **210**, L123, 115-A8 (1976)
- PETHICK, C. J. Effects of Neutrino Degeneracy in Supernovae Models. *D. Q. Lamb and C. J. Pethick*. **209**, L77, 96-G8 (1976)
- PETRO, L. Optical Observations of WRA 977. *D. J. Bord, D. E. Mook, L. Petro, and W. A. Hiltner*. **203**, 689, 10-D2 (1976)
- PETROSIAN, VAHE. Approximate Solutions of Radiative Transfer in Dusty Nebulae. II. Hydrogen and Helium. *Roger A. Dana and Vahé Petrosian*. **208**, 354, 78-F13 (1976)
- Surface Brightness and Evolution of Galaxies. *Vahé Petrosian*. **209**, L1, 92-A2 (1976)
- PETSCHKE, ALBERT G. Stimulated Compton Scattering and Quasar Luminosity. *Albert G. Petschek, S. A. Colgate, and Jeffrey D. Colvin*. **209**, 356, 93-D5 (1976)
- PETTIBONE, DONALD. Steady Accretion of a Rotating Fluid. *Patrick Cassen and Donald Pettibone*. **208**, 500, 80-D3 (1976)
- PFEIFFER, RAYMOND J. The Linear Polarization of BY Draconis. *Robert H. Koch and Raymond J. Pfeiffer*. **204**, L47, 17-D6 (1976)
- PHILLIPS, JOHN G. A New $\Sigma^+ - \Sigma^-$ System of the ZrO Molecule. *John G. Phillips and Sumner P. Davis*. **206**, 632, 51-B4 (1976)
- The $[[X^+]\Sigma^+$ System of Zirconium Oxide. *John G. Phillips and Sumner P. Davis*. **32**, 537, 32-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- PHILLIPS, M. M. The Optical Spectra of 3C 227 and Other Broad-Line Radio Galaxies. *D. E. Osterbrock, A. T. Koski, and M. M. Phillips*. **206**, 898, 55-D1 (1976)
- The Optical Spectrum of I Zwicky 1. *M. M. Phillips*. **208**, 37, 74-D1 (1976)
- PIETSCH, W. The 4.8 Hour Variation of Cygnus X-3 at High X-Ray Energies. *W. Pietsch, E. Kendziorra, R. Staubert, and J. Trümper*. **203**, L67, 8-C6 (1976)
- PILCHER, CARL B. Proton Aurora on Io. *Carl B. Pilcher*. **207**, 646, 66-C3 (1976)
- Surface Compositions of the Satellites of Saturn from Infrared Photometry. *David Morrison, Dale P. Cruikshank, Carl B. Pilcher, and George H. Rieke*. **207**, L213, 72-F9 (1976)
- Proton Aurora on Io: Erratum. *Carl B. Pilcher*. **209**, 651, 96-D12 (1976) (Orig. paper in **207**, 646, 66-C3)
- PINES, D. Neutron Star Structure: Theory, Observation, and Speculation. *V. R. Pandharipande, D. Pines, and R. A. Smith*. **208**, 550, 80-G13 (1976)
- PLAVEC, MIROSLAV. BM Orionis: The Enigmatic Eclipsing Binary in the Trapezium. *Daniel M. Popper and Miroslav Plavec*. **205**, 462, 34-E12 (1976)
- POECKERT, R. Intrinsic Linear Polarization of Be Stars as a Function of $V \sin i$. *R. Poeckert and J. M. Marlborough*. **206**, 182, 44-G10 (1976)
- POEPEL, W. Rolling Motions in an Inner Spiral Arm. *F. M. Strauss and W. Poeppel*. **204**, 94, 14-A11 (1976)
- POLAND, A. I. Interpretation of Broad Band Polarimetry of Solar Coronal Transients: Importance of H α Emission. *A. I. Poland and R. H. Munro*. **209**, 927, 100-G2 (1976)
- POPPER, DANIEL M. BM Orionis: The Enigmatic Eclipsing Binary in the Trapezium. *Daniel M. Popper and Miroslav Plavec*. **205**, 462, 34-E12 (1976)
- Rediscussion of Eclipsing Binaries. XI. The Red Giants RZ Cancri and AR Monocerotis. *Daniel M. Popper*. **208**, 142, 75-E2 (1976)
- POUMEYROL, F. Solar Millimetric Bright Sources on the Quiet Sun. *R. Bocchia and F. Poumeyrol*. **204**, L107, 22-D7 (1976)
- PRATT, J. P. Slow Mass Transfer in Semidetached Binaries. *J. P. Pratt and P. A. Strittmatter*. **204**, L23, 17-C2 (1976)
- PRAVDO, S. H. Iron Line Emission from a High-Temperature Plasma in Cassiopeia A. *S. H. Pravdo, R. H. Becker, E. A.*

- Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **206**, L41, 47-D2 (1976)
- Spectral Variability in the X-Ray Pulsar GX 1+4. R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **207**, L167, 72-C2 (1976)
- X-Ray Observations of the Vela Pulsar: Statistics and Spectrum. S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **208**, L67, 82-B6 (1976)
- Variations in the Spectra and Pulse Period of GX 301-2. J. H. Swank, R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, and P. J. Serlemitsos. **209**, L57, 96-F4 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **209**, L65, 96-F12 (1976)
- PRESS, WILLIAM H. On Estimating the Unprojected Luminosity Density within a Cluster of Galaxies. *William H. Press*. **203**, 14, 1-B2 (1976)
- Method for Determining Maximum-Likelihood Distance for Groups of Galaxies. *Paul Schechter and William H. Press*. **203**, 557, 9-A4 (1976)
- Exact Evolution of Photons in an Anisotropic Cosmology with Scattering. *William H. Press*. **205**, 311, 33-A4 (1976)
- Mass-Angular-Momentum Regimes for Certain Instabilities of a Compact, Rotating Stellar Core. *Paul J. Wiita and William H. Press*. **208**, 525, 80-F1 (1976)
- PRESTON, G. W. Isotopic Abundances of Hg in Mercury Stars Inferred from Hg II λ 3984. R. E. White, Arthur H. Vaughan, Jr., G. W. Preston, and J. P. Swings. **204**, 131, 14-D13 (1976)
- PREUSS, E. Rapid Increase in the Size of 3C 345. M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart. **206**, L1, 47-A2 (1976)
- Observations of a Radio Source in the Nucleus of M81 with Dimensions Less than 1300 Astronomical Units 12:50 11/05/76. K. I. Kellermann, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, and A. Witzel. **210**, L121, 115-A6 (1976)
- PRICE, R. M. 1749+70.1/NGC 6503: A New Quasar/Galaxy Pair. *Patrick C. Crane and R. M. Price*. **207**, L21, 62-C1 (1976)
- PRIMINI, F. The Transient Periodic X-Ray Source in Taurus, A0535+26. H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper. **204**, L67, 22-A10 (1976)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini. **206**, L99, 52-C4 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson. **207**, L95, 67-B12 (1976)
- Orbital Elements and Masses for the SMC X-1/Sanduleak 160 Binary System. F. Primini, S. Rappaport, P. C. Joss, G. W. Clark, W. Lewin, F. Li, W. Mayer, and J. McClintock. **210**, L71, 111-B10 (1976)
- PRIMINI, F. A. MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport. **203**, L21, 4-D11 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- PTAK, ROGER. The Effect of Suprathermal Protons on the Physical Conditions in Seyfert Galaxy Nuclei. II. *Ronald Stoner and Roger Ptak*. **208**, 298, 78-B12 (1976)
- On the Interpretation of Fe II Emission Profiles in Seyfert Galaxies and QSOs. *Roger Ptak and Ronald Stoner*. **210**, 25, 103-C4 (1976)
- PUGET, J. L. Photonuclear Interactions of Ultrahigh-Energy Cosmic Rays and Their Astrophysical Consequences. J. L. Puget, F. W. Stecker, and J. H. Bredekamp. **205**, 638, 36-D6 (1976)
- PURCELL, E. M. Temperature Fluctuations in Very Small Interstellar Grains. E. M. Purcell. **206**, 685, 53-B2 (1976)
- PURCELL, G. H. Rapid Increase in the Size of 3C 345. M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart. **206**, L1, 47-A2 (1976)
- PURCELL, J. D. The Lithium-like $2s\ ^2S-2p\ ^2P$ Transition in Solar Flares. K. G. Widing and J. D. Purcell. **204**, L151, 27-D1 (1976)
- The Emission-Line Spectrum above the Limb of a Solar Coronal Hole: 1175-1940 Å. U. Feldman, G. A. Doschek, M. E. VanHoesier, and J. D. Purcell. **31**, 445, 18-G1 (1976) (Abstr. in **206**, 965, 56-A14)
- PURTON, C. R. The Radio Spectra of Markarian Galaxies. *Gabriel Kojoian, Richard A. Sramek, Dale F. Dickinson, H. Tovmassian, and C. R. Purton*. **203**, 323, 5-D1 (1976)
- PYPER, DIANE M. The Spectrum of the Peculiar A Star HD 25354. *Diane M. Pyper*. **31**, 249, 15-E1 (1976) (Abstr. in **206**, 343, 46-E11)
- QUINTANA, H. The Structure Equations of a Slowly Rotating, Fully Relativistic Solid Star. H. Quintana. **207**, 279, 61-A5 (1976)
- RACINE, RENÉ. New Color-Magnitude Diagrams for Four Globular Clusters. *William E. Harris, René Racine, and James de Roux*. **31**, 13, 11-B1 (1976) (Abstr. in **205**, 655, 36-E10)
- RADICATI, L. A. The Bifurcation from the Maclaurin to the Jacobi Sequence as a Second-Order Phase Transition. G. Bertin and L. A. Radicati. **206**, 815, 54-D7 (1976)
- RADOSTITZ, JAMES V. Three-Color Photometry of HDE 226868: The Optical Counterpart of Cygnus X-1. *Daniel F. Lester, Ira G. Nolt, Shirley A. Stearns, Peter Straton, and James V. Radostitz*. **205**, 855, 40-B12 (1976)
- RAGER, J. P. Ionization Equilibrium of the Three Highest Stages of Ionization of the Elements Carbon to Argon at High Temperatures. B. V. Robouch and J. P. Rager. **208**, 609, 81-E5 (1976)
- RAGES, K. The Occultation of B Scorpii by Jupiter. VII. The Angular Diameters of B Scorpii A1 and A2. J. L. Elliot, K. Rages, and J. Veverka. **207**, 994, 71-C1 (1976)
- RAMATY, REUVEN. Solar Gamma-Ray Lines as Probes of Accelerated Particle Directionalities in Flares. *Reuven Ramaty and Carol Jo Crannell*. **203**, 766, 11-C4 (1976)
- Formation of the 0.511 MeV Line in Solar Flares. *Carol Jo Crannell, Glenn Joyce, Reuven Ramaty, and Carl Wernitz*. **210**, 582, 110-C2 (1976)
- RAMSAY, D. A. The Rotation-Vibration Spectrum of HD: Wavelength and Intensity Measurements of the 3-0, 4-0, 5-0, and 6-0 Electric Dipole Bands. A. R. W. McKellar, W. Goetz, and D. A. Ramsay. **207**, 663, 66-D6 (1976)
- RAMSDEN, D. Observations with a High-Resolution Balloon-borne Gamma-Ray Telescope. S. P. McKechnie, K. E. Mount, and D. Ramsden. **207**, L151, 72-B2 (1976)
- RANK, D. M. Spectral and Spatial Resolution of the 12.8 Micron

- Ne II Emission from the Galactic Center. *E. R. Wollman, T. R. Geballe, J. H. Lacy, C. H. Townes, and D. M. Rank.* **205**, L5, 32-A7 (1976)
- RANKIN, J. M. Further Observations of the Binary Pulsar PSR 1913+16. *J. H. Taylor, R. A. Hulse, L. A. Fowler, G. E. Gullahorn, and J. M. Rankin.* **206**, L53, 47-E1 (1976)
- Further Changes in the Distribution of Density and Radio Scattering in the Solar Corona in 1973. *J. M. Weisberg, J. M. Rankin, R. R. Payne, and C. C. Counselman III.* **209**, 252, 90-F1 (1976)
- RANKIN, JOHN M. Timing Results for Seven Pulsars. *Gordon E. Gullahorn, Robert R. Payne, John M. Rankin, and David W. Richards.* **205**, L151, 42-C13 (1976)
- RAPLEY, C. G. Detection of an Extreme-Ultraviolet Source in the Southern Sky. *Patrick Henry, Stuart Bowyer, C. G. Rapley, and J. L. Culhane.* **209**, L29, 92-C2 (1976)
- RAPPAPORT, S. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Duxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaille, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper.* **203**, L9, 4-C12 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Duxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper.* **204**, L67, 22-A10 (1976)
- On the Ultrasoft X-Ray Background. *A. Levine, S. Rappaport, R. Duxsey, and G. Jernigan.* **205**, 226, 30-D10 (1976)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. *J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primini.* **206**, L99, 52-C4 (1976)
- The 3U 0900-40 Binary System: Orbital Elements and Masses. *S. Rappaport, P. C. Joss, and J. E. McClintock.* **206**, L103, 52-C8 (1976)
- A Fast Transient Source of Hard X-Rays at High Galactic Latitude. *S. Rappaport, J. Buff, G. Clark, W. H. G. Lewin, T. Matilsky, and J. McClintock.* **206**, L139, 56-D7 (1976)
- Evidence for the Binary Nature of A0535+26. *S. Rappaport, P. C. Joss, H. Bradt, G. W. Clark, and J. G. Jernigan.* **208**, L119, 86-G3 (1976)
- Orbital Elements and Masses for the SMC X-1/Sanduleak 160 Binary System. *F. Primini, S. Rappaport, P. C. Joss, G. W. Clark, W. Lewin, F. Li, W. Mayer, and J. McClintock.* **210**, L71, 111-B10 (1976)
- RAPPAPORT, S. A. MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport.* **203**, L21, 4-D11 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport.* **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Duxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson.* **207**, L95, 67-B12 (1976)
- RATNER, MICHAEL I. On the Possibility of Nonlinear Phase Bunching Effects in the Extraordinary Mode Decametric Radio Emission of Jupiter. *Michael I. Ratner.* **209**, 945, 101-A8 (1976)
- RAU, A. R. P. Energy Levels of Hydrogen in Magnetic Fields of Arbitrary Strength. *A. R. P. Rau and Larry Spruch.* **207**, 671, 66-E1 (1976)
- RAYMOND, JOHN C. Radiative Cooling of a Low-Density Plasma. *John C. Raymond, Donald P. Cox, and Barham W. Smith.* **204**, 290, 16-C1 (1976)
- REED, MICHAEL A. I.3 to 2.5 Micron Spectra of MWC 349 and LkH α 101. *Rodger I. Thompson and Michael A. Reed.* **205**, L159, 42-D6 (1976)
- REED, R. A. 16-40 Micron Spectroscopy of the Trapezium and the Kleinmann-Low Nebula in Orion. *W. J. Forrest, J. R. Houck, and R. A. Reed.* **208**, L133, 87-A5 (1976)
- REEVES, E. M. Extreme-Ultraviolet Transients Observed at the Solar Pole. *G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmalz, J. G. Timothy, and J. E. Vernazza.* **203**, 528, 7-F5 (1976)
- REEVES, HUBERT. The Long-Lived Radioisotopes as Monitors of Stellar, Galactic, and Cosmological Phenomena. *Hubert Reeves and Oliver Johns.* **206**, 958, 56-A7 (1976)
- Implications of the Presence of Deuterium in the Galactic Center. *Jean Audouze, James Lequeux, Hubert Reeves, and Laurent Vigroux.* **208**, L51, 82-A6 (1976)
- REID, MARK J. On the Stellar Velocity of Long-Period Variables and OH Maser Stars. *Mark J. Reid.* **207**, 784, 69-A8 (1976)
- The Stellar Velocity of Long-Period Variables. *Mark J. Reid and Dale F. Dickinson.* **209**, 505, 94-G8 (1976)
- REINA, CESARE. The Effect of Radiation Pressure on Accretion Disks around Black Holes. *Laura Maraschi, Cesare Reina, and Aldo Treves.* **206**, 295, 46-B3 (1976)
- RENSE, W. A. Evidence of Outward Flow of Plasma in a Coronal Hole. *G. W. Cushman and W. A. Rense.* **207**, L61, 62-E13 (1976)
- RESCH, G. M. An Unusually Strong Radio Outburst in Algol: VLBI Observations. *T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr.* **206**, L107, 52-C12 (1976)
- Meter-Wavelength VLBI. III. Pulsars. *N. R. Vandenberg, T. A. Clark, W. C. Erickson, G. M. Resch, and J. J. Broderick.* **207**, 937, 70-E12 (1976)
- REYNOLDS, R. J. Observations of the Gum Nebula with a Fabry-Perot Spectrometer. *R. J. Reynolds.* **203**, 151, 2-E9 (1976)
- The Gum Nebula: An Old Supernova Remnant Ionized by Zeta Puppis and Gamma Velorum? *R. J. Reynolds.* **206**, 679, 53-A10 (1976)
- RHOMBS, CRAIG G. Spectrophotometry of the Algol-Type Binaries U Cephei, U Sagittae, and SX Cassiopeiae. *Craig G. Rhombs and John D. Fix.* **209**, 821, 99-F4 (1976)
- RIBES, ELIZABETH. On Magnetic Buoyancy in the Convection Zone. *Wasaburo Unno and Elizabeth Ribes.* **208**, 222, 76-C13 (1976)
- RICE, W. Color and Metallicity Gradients in E and S0 Galaxies. *S. E. Strom, K. M. Strom, J. W. Goad, F. J. Vrba, and W. Rice.* **204**, 684, 23-E3 (1976)
- RICHARDS, DAVID W. Timing Results for Seven Pulsars. *Gordon E. Gullahorn, Robert R. Payne, John M. Rankin, and David W. Richards.* **205**, L151, 42-C13 (1976)
- RICHARDSON, F. S. The Prospects for Astronomical Optical Rotary Dispersion Studies. *P. T. Giguere, L. E. Snyder, and F. S. Richardson.* **208**, 365, 78-G10 (1976)
- RICHARDSON, J. X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Duxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaille, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper.* **203**, L9, 4-C12 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. *W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Duxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson.* **207**, L95, 67-B12 (1976)
- RICHARDSON, J. A. MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G.*

- Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport. **203**, L21, 4-D11 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- Detection of Soft X-Ray Emission from an Unidentified Source at High Galactic Latitude. D. R. Hearn, J. A. Richardson, and G. W. Clark. **210**, L23, 106-C6 (1976)
- RICHER, HARVEY B. Carbon Stars in the Large Magellanic Cloud. Dennis R. Crabtree, Harvey B. Richer, and B. E. Westerlund. **203**, L81, 8-D10 (1976)
- RICHSTONE, DOUGLAS. Collisions of Galaxies in Dense Clusters. II. Dynamical Evolution of Cluster Galaxies. Douglas Richstone. **204**, 642, 23-B1 (1976)
- RICHSTONE, DOUGLAS O. On the Reality of Periodicities in the Redshift Distribution of Emission-Line Objects. Richard F. Green and Douglas O. Richstone. **208**, 639, 83-A4 (1976)
- RICKER, G. R. High-Energy X-Ray Observations of the Transient Source A0535+26 from a Balloon-borne Telescope. G. R. Ricker, A. Scheepmaker, J. E. Ballintine, J. P. Doty, G. A. Kriss, S. G. Ryckman, and W. H. G. Lewin. **204**, L73, 22-B1 (1976)
- The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballintine, J. P. Doty, P. M. Downey, and W. H. G. Lewin. **205**, L65, 37-A11 (1976)
- High-Energy X-Ray Observations of the Southern Sky. G. R. Ricker, M. Gerassimenko, J. E. McClintock, and S. G. Ryckman. **207**, 333, 61-E5 (1976)
- RIDGWAY, STEPHEN T. Carbon Star Photometry: CO and 3.2 Micron Bands. Theodore D. Fay, Jr. and Stephen T. Ridgway. **203**, 600, 9-D6 (1976)
- The 800-1200 Inverse Centimeter Absorption Spectrum of Jupiter. Stephen T. Ridgway, L. Wallace, and Gerald R. Smith. **207**, 1002, 71-C11 (1976)
- RIEKE, G. H. The Infrared Emission of M17. D. A. Harper, F. J. Low, G. H. Rieke, and Harley A. Thronson, Jr. **205**, 136, 29-D6 (1976)
- The Sizes of the Nuclei of Galaxies at 10 Microns. G. H. Rieke. **206**, L15, 47-B3 (1976)
- An Observational Study of the AFCRL Infrared Sky Survey. I. Limited Ground-based Survey and Results from Preliminary Catalog. F. J. Low, R. F. Kurtz, F. J. Vrba, and G. H. Rieke. **206**, L153, 56-E8 (1976)
- An Observational Study of the AFCRL Infrared Sky Survey. II. Present Results of a New Program to Study the Final Catalog. M. J. Lebofsky, S. G. Kleinmann, G. H. Rieke, and F. J. Low. **206**, L157, 56-E11 (1976)
- The Infrared Emission of Markarian 231. G. H. Rieke. **210**, L5, 106-B5 (1976)
- RIEKE, GEORGE H. Surface Compositions of the Satellites of Saturn from Infrared Photometry. David Morrison, Dale P. Cruikshank, Carl B. Pilcher, and George H. Rieke. **207**, L213, 72-F9 (1976)
- RIGHINI, G. Solar Brightness Temperature Distribution at 350 and 450 Microns. G. Righini and M. Simon. **203**, L95, 8-E9 (1976)
- 3 Millimeter and 350 Micron Continuum Observations of the DR-21 and Sagittarius B2 Regions. G. Righini, M. Simon, and R. R. Joyce. **207**, 119, 59-C7 (1976)
- RINEHART, R. Rapid Increase in the Size of 3C 345. M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart. **206**, L1, 47-A2 (1976)
- ROBB, W. D. Atomic Nitrogen as a Probe of Physical Conditions in the Interstellar Medium. M. A. Dopita, D. J. Mason, and W. D. Robb. **207**, 102, 59-B2 (1976)
- ROBERTS, B. Overstability and Cooling in Sunspots. B. Roberts. **204**, 268, 16-A6 (1976)
- ROBERTS, D. H. The Luminosity Distribution and Total Space Density of Pulsars. D. H. Roberts. **205**, L29, 32-B14 (1976)
- The Period-Pulse-Width Distribution of Pulsars and Their Division into Three Classes. D. H. Roberts. **207**, 949, 70-F11 (1976)
- Comments on "The Composite Hubble Diagram". S. L. O'Dell and D. H. Roberts. **210**, 294, 107-B5 (1976)
- ROBERTS, DAVID H. Determining the Stellar Masses in the Binary System Containing the Pulsar PSR 1913+16: Is the Companion a Helium Main-Sequence Star? David H. Roberts, A. Ronald Masters, and W. David Arnett. **203**, 196, 3-B6 (1976)
- ROBERTSON, D. S. An Unusually Strong Radio Outburst in Algol: VLBI Observations. T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr. **206**, L107, 52-C12 (1976)
- ROBERTSON, J. W. Detection of a He I 4517 Å Absorption Feature in the DB White Dwarf GD 190. James Liebert, E. A. Beaver, J. W. Robertson, and P. A. Strittmatter. **204**, L119, 27-A10 (1976)
- ROBERTSON, JOHN W. Cosmic-Ray Acceleration and the Radio Evolution of Cassiopeia A. Roger A. Chevalier, John W. Robertson, and John S. Scott. **207**, 450, 64-B5 (1976)
- ROBINSON, EDWARD L. The Masses of Cataclysmic Variables. Edward L. Robinson. **203**, 485, 7-B13 (1976)
- High-Speed Photometry of Luminosity-Variable DA Dwarfs: R808, GD 99, and G117-B15A. John T. McGraw and Edward L. Robinson. **205**, L155, 42-D2 (1976)
- Observations of Variable White Dwarfs: One New Variable and 35 Nonvariables. Edward L. Robinson and John T. McGraw. **207**, L37, 62-D5 (1976)
- The Photometric Properties of the Pulsating White Dwarf R548. Edward L. Robinson, R. Edward Nather, and John T. McGraw. **210**, 211, 105-C10 (1976)
- ROBINSON, G. WILSE. Molecular Hydrogen in Interstellar Dark Clouds. Mark Allen and G. Wilse Robinson. **207**, 745, 68-E10 (1976)
- ROBINSON, R. D. Radio Emission from a Source near the Flare Star AD Leonis. R. D. Robinson, O. B. Slee, and A. G. Little. **203**, L91, 3-E6 (1976)
- ROBOUCH, B. V. Ionization Equilibrium of the Three Highest Stages of Ionization of the Elements Carbon to Argon at High Temperatures. B. V. Robouch and J. P. Rager. **208**, 609, 81-E5 (1976)
- ROCCHIA, ROBERT. Spectrum and Origin of X- and Gamma-Ray Diffuse Background. Robert Rocchia, René Ducros, and Bernard Gaffet. **209**, 350, 93-C7 (1976)
- RODGERS, A. W. The BL Lacertae Object AP Librae in 1975. B. A. Peterson, A. W. Rodgers, E. J. Wampler, and M. J. Disney. **207**, L17, 62-B9 (1976)
- Stellar Model Chromospheres. V. Alpha Centauri A (G2 V) and Alpha Centauri B (K1 V). T. R. Ayres, J. L. Linsky, A. W. Rodgers, and R. L. Kurucz. **210**, 199, 105-B11 (1976)
- ROGERS, A. E. E. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönning, O. E. H. Rydbeck, and A. E. Niell. **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr. **206**, L107, 52-C12 (1976)
- ROGERSON, JOHN B., JR. The Abundance of Deuterium Relative to Hydrogen in Interstellar Space. Donald G. York and John B. Rogerson, Jr. **203**, 378, 6-A1 (1976)
- ROGSTAD, D. H. Aperture Synthesis of Neutral Hydrogen in the

- Galaxy M33. *D. H. Rogstad, M. C. H. Wright, and I. A. Lockhart.* **204**, 703, 23-F8 (1976)
- ROMANISHIN, W. A Study of Be Stars in Clusters. *R. Schild and W. Romanishin.* **204**, 493, 19-G6 (1976)
- ROMNEY, J. D. Rapid Increase in the Size of 3C 345. *M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart.* **206**, L1, 47-A2 (1976)
- A Very Small Interstellar Neutral Hydrogen Cloud Observed with VLBI Techniques. *N. H. Dieter, W. J. Welch, and J. D. Romney.* **206**, L113, 52-D3 (1976)
- RÖNNÄNG, B. O. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. *J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell.* **206**, L75, 52-A2 (1976)
- Water Vapor Emission from H II Regions and Infrared Stars. *B. T. Cato, B. O. Rönnäng, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardasmenos, and J. F. Shanley.* **208**, 87, 74-G11 (1976)
- ROOD, HERBERT J. Radial Velocities and Masses of Galaxies in Groups from 21-Centimeter Line Observations. *Herbert J. Rood and John R. Dickel.* **205**, 346, 33-C12 (1976)
- Corrected Ratios of Average Mass to Average Luminosity for Double Galaxies. *Herbert J. Rood.* **205**, 354, 33-D8 (1976)
- The Coma Supercluster: Analysis of Zwicky-Herzog Cluster 16 in Field 158. *Guido Chincarini and Herbert J. Rood.* **206**, 30, 43-C5 (1976)
- Nearby Groups of Galaxy Clusters. *Herbert J. Rood.* **207**, 16, 58-B8 (1976)
- ROOD, R. T. The Triple-Alpha Rate, Screening Factors, and the Helium Flash: Erratum. *T. D. Tarbell and R. T. Rood.* **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 443, 56-E3)
- On the Aggregate Flux of Weak Point Sources at 1404 MHz. *S. J. Goldstein, Jr., A. P. Marscher, and R. T. Rood.* **210**, 321, 107-D4 (1976)
- ROOD, ROBERT T. Stellar Production as a Source of ^3He in the Interstellar Medium. *Robert T. Rood, Gary Steigman, and Beatrice M. Tinsley.* **207**, L57, 62-E9 (1976)
- ROOSEN, ROBERT G. Direct Photography of the Gum Nebula. *John C. Brandt, Robert G. Roosen, J. Thompson, and D. J. Ludden.* **208**, 109, 75-B6 (1976)
- ROSE, WILLIAM K. Magnetic Fields and the Nova Outburst. *William K. Rose and Eugene Howard Scott.* **204**, 516, 20-B1 (1976)
- A Mechanism for the Production of Pulsar Radio Radiation. *Philip E. Hardee and William K. Rose.* **210**, 533, 109-F1 (1976)
- ROSENAU, PHILIP. Shock Disturbances in a Thermally Conducting Solar Wind. *Philip Rosenau and Shimshon Frankenthal.* **208**, 633, 81-G2 (1976)
- ROSENBLUM, ARNOLD. Comments on Gravitational Radiation Damping and Energy Loss in Binary Systems. *Jürgen Ehlers, Arnold Rosenblum, Joshua N. Goldberg, and Peter Havas.* **208**, L77, 82-C2 (1976)
- ROSI, LEONARD A. Polarized Radiation in Magnetic White Dwarfs. *Leonard A. Rosi, Robert L. Zimmerman, and James C. Kemp.* **209**, 868, 100-B11 (1976)
- ROSS, RANDY L. The Equilibrium and Stability of Uniformly Rotating, Isothermal Gas Cylinders. *Carl J. Hansen, Morris L. Aizenman, and Randy L. Ross.* **207**, 736, 68-E1 (1976)
- ROTHSCHILD, R. E. Iron Line Emission from a High-Temperature Plasma in Cassiopeia A. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **206**, L41, 47-D2 (1976)
- Spectral Variability in the X-Ray Pulsar GX 1+4. *R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **207**, L167, 72-C2 (1976)
- X-Ray Observations of the Vela Pulsar: Statistics and Spectrum. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **208**, L67, 82-B6 (1976)
- Variations in the Spectra and Pulse Period of GX 301-2. *J. H. Swank, R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, and P. J. Serlemitsos.* **209**, L57, 96-F4 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. *R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **209**, L65, 96-F12 (1976)
- ROTTMAN, G. J. Preliminary Results from the Orbiting Solar Observatory 8: Transition-Zone Dynamics over a Sunspot. *E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. A. Shine, R. G. Athay, and O. R. White.* **210**, L97, 111-D11 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Velocities in the Solar Chromosphere Observed in the Si II λ 1816 Line. *E. G. Chipman, E. C. Bruner, Jr., R. A. Shine, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White.* **210**, L103, 111-E4 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. *R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White.* **210**, L107, 111-E8 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Persistent Velocity Fields in the Chromosphere and Transition Region. *B. W. Lites, E. C. Bruner, Jr., E. G. Chipman, R. A. Shine, G. J. Rottman, O. R. White, and R. G. Athay.* **210**, L111, 111-E12 (1976)
- ROUEFF, E. Quantum Effects in the Formation of CH^+ by Radiative Association. *H. Abgrall, A. Giusti-Suzor, and E. Roueff.* **207**, L69, 62-F6 (1976)
- ROUGHTON, N. A. Thermonuclear Reaction Rates Derived from Thick-Target Yields. *N. A. Roughton, M. J. Fritts, R. J. Peterson, C. S. Zaidins, and C. J. Hansen.* **205**, 302, 31-C4 (1976)
- ROUSSEL-DUPRE, D. Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. *R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White.* **210**, L107, 111-E8 (1976)
- ROUX, F. Experimental Oscillator Strengths in the $\text{C}_2(4^1[\text{u}-\text{X}^1\Sigma^+])$ Phillips Band System. *F. Roux, D. Cerny, and J. D'Incan.* **204**, 940, 26-C1 (1976)
- RUBIN, VERA C. Motions of the Stars and the Excited Gas in the Barred Spiral Galaxy NGC 3351. *Charles J. Peterson, Vera C. Rubin, W. Kent Ford, Jr., and Norbert Thonnard.* **208**, 662, 83-C3 (1976)
- RUDERMAN, M. Direction of Subpulse Drifting within Pulsar Radio Emission Envelopes. *M. Ruderman.* **203**, 206, 3-C2 (1976)
- Crust-Breaking by Neutron Superfluids and the Vela Pulsar Glitches. *M. Ruderman.* **203**, 213, 3-C9 (1976)
- RUDERMAN, MALVIN. Current Flow in Pulsar Magnetospheres. *Andrew Cheng, Malvin Ruderman, and Peter Sutherland.* **203**, 209, 3-C5 (1976)
- Neutrino Pair Emission from Finite-Temperature Neutron Superfluid and the Cooling of Young Neutron Stars. *Elliott Flowers, Malvin Ruderman, and Peter Sutherland.* **205**, 541, 35-D8 (1976)
- RUDNICK, LAWRENCE. Compact Radio Sources in the Directions of Rich Clusters of Galaxies. *Frazer N. Owen and Lawrence Rudnick.* **203**, 307, 5-B13 (1976)
- Head-Tail Radio Sources in Clusters of Galaxies. *Lawrence Rudnick and Frazer N. Owen.* **203**, L107, 11-D5 (1976)
- Radio Sources with Wide-Angle Tails in Abell Clusters of Galaxies. *Frazer N. Owen and Lawrence Rudnick.* **205**, L1, 32-A2 (1976)
- RUDY, RICHARD J. Nova Cygni 1975: Narrow-Band Polarimetry

- and Photometry 0.36–1.7 Microns. *James C. Kemp and Richard J. Rudy*. **203**, L131, 11-E13 (1976)
- AO Cassiopeiae: Phase-locked Polarization and the Geometry of the Gas Stream. *Richard J. Rudy and James C. Kemp*. **207**, L125, 67-D13 (1976)
- The Variable Linear Polarization of Cygnus X-1, 1974–1975 Observations. *James C. Kemp, Robert G. Southwick, and Richard J. Rudy*. **210**, 239, 105-E10 (1976)
- RUGGE, H. R. The Relative Abundance of Neon and Magnesium in the Solar Corona. *H. R. Rugge and A. B. C. Walker, Jr.*. **203**, L139, 11-F6 (1976)
- RUIZ, MARIA TERESA. An Approximate Dynamical Model for Spheroidal Stellar Systems. *Maria Teresa Ruiz and M. Schwarzschild*. **207**, 376, 63-C11 (1976)
- A Dynamical Model for the Central Region of M31. *Maria Teresa Ruiz*. **207**, 382, 63-D3 (1976)
- RUSSELL, R. W. Infrared Observations of Ices and Silicates in Molecular Clouds. *K. M. Merrill, R. W. Russell, and B. T. Soifer*. **207**, 763, 68-G1 (1976)
- 2–4 Micron Spectrophotometric Observations of the Galactic Center. *B. T. Soifer, R. W. Russell, and K. M. Merrill*. **207**, L83, 67-B1 (1976)
- 2–4 Micron Spectrophotometric Observations of Compact H II Regions. *B. T. Soifer, R. W. Russell, and K. M. Merrill*. **210**, 334, 107-E5 (1976)
- RYBICKI, G. B. Transfer of Line Radiation in Differentially Expanding Atmospheres. IV. The Two-Level Atom in Plane-parallel Geometry Solved by the Feautrier Method: Erratum. *P. D. Noerdlinger and G. B. Rybicki*. **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 651, 71-D5)
- RYCKMAN, S. G. High-Energy X-Ray Observations of the Transient Source A0535+26 from a Balloon-borne Telescope. *G. R. Ricker, A. Scheepmaker, J. E. Ballintine, J. P. Doty, G. A. Kriss, S. G. Ryckman, and W. H. G. Lewin*. **204**, L73, 22-B1 (1976)
- The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. *A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballintine, J. P. Doty, P. M. Downey, and W. H. G. Lewin*. **205**, L65, 37-A11 (1976)
- High-Energy X-Ray Observations of the Southern Sky. *G. R. Ricker, M. Gerassimenko, J. E. McClintock, and S. G. Ryckman*. **207**, 333, 61-E5 (1976)
- RYDBECK, O. E. H. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. *J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell*. **206**, L75, 52-A2 (1976)
- Water Vapor Emission from H II Regions and Infrared Stars. *B. T. Cato, B. O. Rönnäng, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardenasmenos, and J. F. Shanley*. **208**, 87, 74-G11 (1976)
- Radio Observations of Interstellar CH. I. *O. E. H. Rydbeck, E. Kollberg, A. Hjalmarsen, A. Sume, J. Elldér, and W. M. Irvine*. **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- RYDGREN, A. E. The Nature of the Objects of Joy: A Study of the T Tauri Phenomenon. *A. E. Rydgren, S. E. Strom, and K. M. Strom*. **30**, 307, 6-A1 (1976) (Abstr. in **204**, 312, 16-D9)
- SAGAN, CARL. Particles, Environments, and Possible Ecologies in the Jovian Atmosphere. *Carl Sagan and E. E. Salpeter*. **32**, 737, 35-A1 (1976) (Abstr. in **210**, 624, 110-F3)
- SALPETER, E. E. Planetary Nebulae, Supernova Remnants, and the Interstellar Medium. *E. E. Salpeter*. **206**, 673, 53-A4 (1976)
- Spatial Distribution of Neutral Hydrogen in Virgo Cluster Galaxies of Early Type. *N. Krumm and E. E. Salpeter*. **208**, L7, 77-A7 (1976)
- Particles, Environments, and Possible Ecologies in the Jovian Atmosphere. *Carl Sagan and E. E. Salpeter*. **32**, 737, 35-A1 (1976) (Abstr. in **210**, 624, 110-F3)
- SAMPSON, DOUGLAS H. Electron Impact Excitation Cross Sections for Complex Ions. III. Highly Charged Ions with Three Valence Electrons. *Allen D. Parks and Douglas H. Sampson*. **209**, 312, 91-C6 (1976)
- SANDAGE, ALLAN. The Absolute Magnitude of First Ranked Cluster Galaxies as a Function of Cluster Richness. *Allan Sandage*. **205**, 6, 28-A10 (1976)
- Precise Positions of Radio Sources. II. Optical Measurements: Erratum. *Jerome Kristian and Allan Sandage*. **205**, 308, 31-C10 (1976) (Orig. paper in **162**, 391, 31-C10)
- The Extension of the Hubble Diagram. I. New Redshifts and BVR Photometry of Remote Cluster Galaxies, and an Improved Richness Correction. *Allan Sandage, Jerome Kristian, and James A. Westphal*. **205**, 688, 38-C5 (1976)
- The Virgo Clusters. I. The Equality of Mean Redshifts of E and S. Galaxies near the Cluster Center. *Allan Sandage and G. A. Tammann*. **207**, L1, 62-A2 (1976)
- Steps toward the Hubble Constant. VII. Distances to NGC 2403, M101, and the Virgo Cluster Using 21 Centimeter Line Widths Compared with Optical Methods: The Global Value of H_0 . *Allan Sandage and G. A. Tammann*. **210**, 7, 103-A10 (1976)
- SANDERS, R. H. The Observational Effects of Explosions in the Nuclei of Spiral Galaxies. *R. H. Sanders and T. M. Bania*. **204**, 341, 18-C3 (1976)
- Gas Response to Oval Distortions in Disk Galaxies. *R. H. Sanders and J. M. Huntley*. **209**, 53, 88-E4 (1976)
- SANDERS, ROBERT H. Explosions in Galactic Nuclei and the Formation of Double Radio Sources. *Robert H. Sanders*. **205**, 335, 33-C1 (1976)
- SANDERS, W. T. Neutral Hydrogen in the Direction of the Small Magellanic Cloud and the Limits on an Extragalactic Soft X-Ray Flux. *D. McCammon, S. S. Meyer, W. T. Sanders, and F. O. Williamson*. **209**, 46, 88-D9 (1976)
- SANDLIN, G. D. High-Temperature Flare Lines in the Solar Spectrum 171–630 Å. *G. D. Sandlin, G. E. Brueckner, V. E. Scherrer, and R. Tousey*. **205**, L47, 32-D4 (1976)
- SANDMANN, WILLIAM H. Metallicity, Pulsation, and the Nature of 32 Virgins. *Donald W. Kurtz, Michel Breger, Steven W. Evans, and William H. Sandmann*. **207**, 181, 60-A4 (1976)
- SANFORD, P. W. Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. *K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner*. **207**, 78, 58-G1 (1976)
- The Variability and Absorption of the X-Ray Emission from NGC 4151. *J. C. Ives, P. W. Sanford, and M. V. Penston*. **207**, L159, 72-B9 (1976)
- Periodic Modulation of Three Galactic X-Ray Sources. *N. E. White, K. O. Mason, H. E. Huckle, P. A. Charles, and P. W. Sanford*. **209**, L119, 101-E5 (1976)
- SANFORD, PETER. The X-Ray Behavior of 3U 1700–37. *Keith O. Mason, Graziella Branduardi, and Peter Sanford*. **203**, L29, 4-E5 (1976)
- SANFORD, PETER W. An X-Ray Survey of BL Lacertae Objects. *Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidsen, Keith O. Mason, and Peter W. Sanford*. **207**, 359, 63-B6 (1976)
- SANNER, FRED. Mass Loss in Red Giants and Supergiants. *Fred Sanner*. **204**, L41, 17-D1 (1976)
- Mass Loss in Red Giants and Supergiants. *Fred Sanner*. **32**, 115, 23-D1 (1976) (Abstr. in **208**, 272, 76-G10)
- SANTIAGO, J. J. Effects of Stellar Particle Irradiation on Interstellar Grains. *S. J. Czyzak, J. M. Meese, and J. J. Santiago*. **207**, 425, 63-G5 (1976)
- SANYAL, A. High Time-Resolution Spectroscopy of Beta Lyrae at Ha. I. *A. Sanyal*. **210**, 853, 114-D12 (1976)
- SARAZIN, C. Infrared Studies of an Ionized Front Region in the Orion Nebula. *E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner*. **207**, 770, 68-G8 (1976)

- SARAZIN, C. L. The Role of Dust in NGC 2024. *C. L. Sarazin*. **204**, 68, 13-F8 (1976)
- SARAZIN, CRAIG L. Abundance Gradients in Extragalactic H II Regions and Internal Absorption by Dust. *Craig L. Sarazin*. **208**, 323, 78-D9 (1976)
- SASLAW, WILLIAM C. The Growth of Correlations in an Expanding Universe and the Clustering of Galaxies. *S. Michael Fall and William C. Saslaw*. **204**, 631, 23-A4 (1976)
- The Evolution of Massive Collapsing Gas Clouds. *Sabastian von Hoerner and William C. Saslaw*. **206**, 917, 55-E6 (1976)
- SAVAGE, BLAIR D. High-Resolution Profiles of the Diffuse Interstellar Feature at 5780 Å. *Blair D. Savage*. **205**, 122, 29-C7 (1976)
- Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIII. The Resonance Lines of Triply Ionized Carbon and Silicon in the Spectra of Hot Stars. *Robert J. Panek and Blair D. Savage*. **206**, 167, 44-F8 (1976)
- SAVEDOFF, M. P. On the White Dwarf HZ 43 as an Extreme-Ultraviolet Source. *Richard H. Durisen, M. P. Savedoff, and H. M. Van Horn*. **206**, L149, 56-E4 (1976)
- SAVEDOFF, MALCOLM P. The Far-Ultraviolet Spectrum of Sirius B from Copernicus. *Malcolm P. Savedoff, H. M. Van Horn, F. Wesemael, L. H. Auer, T. P. Snow, and D. G. York*. **207**, L45, 62-D12 (1976)
- SAYKALLY, R. J. The Microwave Spectrum of Hydrogen Isocyanide. *R. J. Saykally, P. G. Szanto, T. G. Anderson, and R. C. Woods*. **204**, L143, 27-C8 (1976)
- SAYKALLY, RICHARD J. Laboratory Microwave Spectrum and Rest Frequencies of the N_2H^+ Ion. *Richard J. Saykally, Thomas A. Dixon, Thomas G. Anderson, Peter G. Szanto, and R. Claude Woods*. **205**, L101, 37-D1 (1976)
- SCALO, JOHN M. Fluorine Power and Helium-Shell Flashes. *John M. Scalo and Keith H. Despain*. **203**, 667, 10-B8 (1976)
- On the Limiting Mass of Carbon-Oxygen White Dwarfs. *John M. Scalo*. **206**, 215, 45-C1 (1976)
- A Composite Hertzsprung-Russell Diagram for the Peculiar Red Giants. *John M. Scalo*. **206**, 474, 49-D5 (1976)
- Production of Galactic ^7Li by Slow Mass Loss. *John M. Scalo*. **206**, 795, 54-C1 (1976)
- A Criterion for the Maximum Extent of Flash-driven Convection. *Keith H. Despain and John M. Scalo*. **208**, 789, 84-G1 (1976)
- SCARFE, C. D. On the Period and Radius of Zeta Geminorum. *C. D. Scarfe*. **209**, 141, 89-D11 (1976)
- SCHECHTER, P. An Analytic Expression for the Luminosity Function for Galaxies. *P. Schechter*. **203**, 297, 5-B3 (1976)
- SCHECHTER, PAUL. Method for Determining Maximum-Likelihood Distance for Groups of Galaxies. *Paul Schechter and William H. Press*. **203**, 557, 9-A4 (1976)
- SCHECHTER, PAUL L. On the Significance of the Luminosities of First-ranked Members of Sparse Groups of Galaxies. *Paul L. Schechter and P. J. E. Peebles*. **209**, 670, 98-B8 (1976)
- SCHEEPMER, A. High-Energy X-Ray Observations of the Transient Source A0535+26 from a Balloon-borne Telescope. *G. R. Ricker, A. Scheepmaker, J. E. Ballintine, J. P. Doty, G. A. Kriss, S. G. Ryckman, and W. H. G. Lewin*. **204**, L73, 22-B1 (1976)
- The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. *A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballintine, J. P. Doty, P. M. Downey, and W. H. G. Lewin*. **205**, L65, 37-A11 (1976)
- SCHERRER, V. E. High-Temperature Flare Lines in the Solar Spectrum 171–630 Å. *G. D. Sandlin, G. E. Brueckner, V. E. Scherrer, and R. Tousey*. **205**, L47, 32-D4 (1976)
- SCHILD, R. A Study of Be Stars in Clusters. *R. Schild and W. Romanishin*. **204**, 493, 19-G6 (1976)
- SCHILD, R. E. The Distance-reddening Law for Nova Cygni (1975) = V1500 Cygni. *R. E. Schild*. **209**, L35, 92-C7 (1976)
- SCHILD, RUDOLPH E. The Galactic Distribution of Interstellar Absorption as Determined from the *Telescope* Catalog of Ultraviolet Stellar Observations and a New Catalog of *UBV*, H-Beta Photoelectric Observations. *William A. Deutschman, Robert J. Davis, and Rudolph E. Schild*. **30**, 97, 3-A2 (1976) (Abstr. in **203**, 284, 4-A12)
- SCHILIZZI, R. T. Rapid Increase in the Size of 3C 345. *M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart*. **206**, L1, 47-A2 (1976)
- SCHLICKEISER, R. The Structure of the Galactic Disk and Its Implications for Gamma-Ray Astronomy. *B. Fuchs, R. Schlickeiser, and K. O. Thielheim*. **206**, 589, 50-F1 (1976)
- SCHMAHL, E. J. Extreme-Ultraviolet Transients Observed at the Solar Pole. *G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmah, J. G. Timothy, and J. E. Vernazza*. **203**, 528, 7-F5 (1976)
- SCHMIDT, EDWARD G. (R-I) Colors of Cepheids and Yellow Supergiants in Open Clusters. *Edward G. Schmidt*. **203**, 466, 7-A5 (1976)
- Evidence Favoring Nonevolutionary Cepheid Masses. *Norman Simon and Edward G. Schmidt*. **205**, 162, 29-F5 (1976)
- SCHMIDT, GARY D. A Reinvestigation of the Scattering Halo of M82 Based on Polarimetric and Isophotal Maps. *Gary D. Schmidt, J. R. P. Angel, and R. H. Cromwell*. **206**, 888, 55-C1 (1976)
- SCHMIDT, MAARTEN. On the Apparent Absence of Evolution of Quasi-stellar Radio Sources with Flat Radio Spectra. *Maarten Schmidt*. **209**, L55, 96-F2 (1976)
- SCHNOPPER, H. X-Ray Nova A0620–00: Celestial Position and Low-Energy Flux. *R. Duxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaile, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper*. **203**, L9, 4-C12 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. *H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Duxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Lauffer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper*. **204**, L67, 22-A10 (1976)
- Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. *J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver*. **205**, L127, 42-B6 (1976)
- Improved Position for the X-Ray Source Associated with the Globular Cluster NGC 6441. *J. E. Grindlay, H. Schnopper, E. Schreier, H. Gursky, and D. R. Parsignault*. **206**, L23, 47-B11 (1976)
- SCHNOPPER, H. W. Detection of X-Rays from Algol (β Persei). *H. W. Schnopper, J. P. Delvaile, A. Epstein, H. Helmen, S. S. Murray, G. Clark, G. Jernigan, and R. Duxsey*. **210**, L75, 111-C1 (1976)
- SCHOLER, M. The Effect of Convection and Adiabatic Deceleration on the Time to Maximum Flux in Energetic Solar Particle Events. *M. Scholer*. **209**, L101, 97-B3 (1976)
- SCHRAMM, D. N. $^{12}\text{C}/^{13}\text{C}$ Ratios in Stars Ascending the Giant Branch the First Time. *D. S. P. Dearborn, P. P. Eggleton, and D. N. Schramm*. **203**, 455, 6-G8 (1976)
- A Possible Alternative to the *r*-Process. *J. B. Blake and D. N. Schramm*. **209**, 846, 100-A1 (1976)
- SCHRAMM, DAVID N. Consistency of Cosmic-Ray Composition, Acceleration Mechanism and Supernova Models. *Kem L. Hainebach, Eric B. Norman, and David N. Schramm*. **203**, 245, 3-F1 (1976)
- Effects of Convective Overshoot on Lithium Depletion in Main-Sequence Stars. *Joe M. Straus, J. B. Blake, and David N. Schramm*. **204**, 481, 19-F7 (1976)
- Magnetohydrodynamic Phenomena in Collapsing Stellar Cores. *David L. Meier, Richard I. Epstein, W. David Arnett, and David N. Schramm*. **204**, 869, 25-D10 (1976)
- Neutrino Opacities at High Temperatures and Densities: Erratum. *David L. Tubbs and David N. Schramm*. **205**, 308, 31-C10 (1976) (Orig. paper in **201**, 467, 82-C11)
- Synthesis of the Light Elements in Supernovae (Abstract of 1976 May Suppl.). *Richard I. Epstein, W. David Arnett,*

- and David N. Schramm. **205**, 657, 36-E12 (1976)
- Cosmic-Ray Spallative Origin of the Rare Odd-odd Nuclei, Consistent with Light Element Production. *Kem L. Haibach, David N. Schramm, and J. B. Blake*. **205**, 920, 40-G12 (1976)
- Galactic Evolution Models and the Rhenium-187/Osmium-187 Chronometer: A Greater Age for the Galaxy. *Kem L. Haibach and David N. Schramm*. **207**, L79, 67-A9 (1976)
- Neutrino Pair Bremsstrahlung Including Neutral Current Effects. *Duane A. Dicus, Edward W. Kolb, David N. Schramm, and David L. Tubbs*. **210**, 481, 109-B3 (1976)
- The Tidal Disruption of Neutron Stars by Black Holes in Close Binaries. *James M. Lattimer and David N. Schramm*. **210**, 549, 109-G3 (1976)
- Synthesis of the Light Elements in Supernovae. *Richard I. Epstein, W. David Arnett, and David N. Schramm*. **31**, 111, 12-F1 (1976) (Abstr. in **205**, 657, 36-E12)
- SCHREIER, E. Improved Position for the X-Ray Source Associated with the Globular Cluster NGC 6441. *J. E. Grindlay, H. Schnopper, E. Schreier, H. Gursky, and D. R. Parsignault*. **206**, L23, 47-B11 (1976)
- On the Stability of the Period of Cygnus X-3. *D. R. Parsignault, E. Schreier, J. Grindlay, and H. Gursky*. **209**, L73, 96-G5 (1976)
- SCHREIER, E. J. The Long-Term Intensity Behavior of Centaurus X-3. *E. J. Schreier, K. Swartz, R. Giacconi, G. Fabbiano, and J. Morin*. **204**, 539, 20-D2 (1976)
- SCHRIJVER, J. Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. *J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver*. **205**, L127, 42-B6 (1976)
- SCHUSTER, WILLIAM J. On the Nature of IRC +10420. *Eric R. Craine, William J. Schuster, S. Tapia, and Frederick J. Vrba*. **205**, 802, 39-E1 (1976)
- SCHWARTZ, DANIEL A. A Measurement of Fluctuations in the X-Ray Background by Uhuru. *Daniel A. Schwartz, Stephen S. Murray, and Herbert Gursky*. **204**, 315, 18-A4 (1976)
- A New Cosmological Test for q_0 . *Daniel A. Schwartz*. **206**, L95, 52-C1 (1976)
- SCHWARTZ, R. D. Emission Line Spectra of Individual Condensations of Herbig-Haro Objects. *K.-H. Böhm, W. A. Siegmund, and R. D. Schwartz*. **203**, 399, 6-B13 (1976)
- SCHWARTZ, RICHARD D. Radiative Transport in Circumstellar Dust Shells. *Ronald E. Taam and Richard D. Schwartz*. **204**, 842, 25-B11 (1976)
- SCHWARTZ, ROBERT A. Enhanced Effects of Starlight on the Interstellar Medium. *Humberto Gerola and Robert A. Schwartz*. **206**, 452, 49-B9 (1976)
- SCHWARZSCHILD, M. An Approximate Dynamical Model for Spheroidal Stellar Systems. *Maria Teresa Ruiz and M. Schwarzschild*. **207**, 376, 63-C11 (1976)
- SCHWEIZER, FRANÇOIS. Photometric Studies of Spiral Structure. I. The Disks and Arms of Six Sb I and Sc I Galaxies. *François Schweizer*. **31**, 313, 17-A2 (1976) (Abstr. in **206**, 963, 56-A12)
- SCIAMBI, R. K. A Direct Measurement of the Charge States of Energetic Iron Emitted by the Sun. *G. Gloeckler, R. K. Sciambi, C. Y. Fan, and D. Hovestadt*. **209**, L93, 97-A9 (1976)
- SCOTT, EUGENE HOWARD. Magnetic Fields and the Nova Outburst. *William K. Rose and Eugene Howard Scott*. **204**, 516, 20-B1 (1976)
- SCOTT, JOHN S. *In Situ* Particle Acceleration and Physical Conditions in Radio Tail Galaxies. *A. G. Pacholczyk and John S. Scott*. **203**, 313, 5-C6 (1976)
- Cosmic-Ray Acceleration and the Radio Evolution of Cassiopeia A. *Roger A. Chevalier, John W. Robertson, and John S. Scott*. **207**, 450, 64-B5 (1976)
- The Cluster of Galaxies Abell 2255. *M. Tarengi and John S. Scott*. **207**, L9, 62-A10 (1976)
- Physics of Compact Radio Sources. I. Particle Acceleration and Flux Variations. *A. G. Pacholczyk and John S. Scott*. **210**, 311, 107-C8 (1976)
- SCOVILLE, N. Z. Infrared Sources in Molecular Clouds. *N. Z. Scoville and John Kwan*. **206**, 718, 53-D7 (1976)
- SCOVILLE, NICK. OH-IR Stars. I. Physical Properties of Circumstellar Envelopes. *Peter Goldreich and Nick Scoville*. **205**, 144, 29-E1 (1976)
- OH-IR Stars. II. A model for the 1612 MHz Masers. *Moshe Elitzur, Peter Goldreich, and Nick Scoville*. **205**, 384, 33-F13 (1976)
- On the Origin of the 10 Micron Depressions in the Spectra of Compact Infrared Sources. *John Kwan and Nick Scoville*. **209**, 102, 89-A12 (1976)
- The Nature of the Broad Molecular Line Emission at the Kleinmann-Low Nebula. *John Kwan and Nick Scoville*. **210**, L39, 106-D8 (1976)
- SEAQUIST, E. R. Radio Emission from the Wolf-Rayet Binary γ^2 Velorum. *E. R. Seaquist*. **203**, L35, 4-E11 (1976)
- Radio Continuum Observations of NML Cygni. *P. C. Gregory and E. R. Seaquist*. **204**, 626, 21-C5 (1976)
- A Model for the Radio Outbursts of Cygnus X-3. *E. R. Seaquist*. **207**, 88, 59-A1 (1976)
- SEARLE, L. Optical and Infrared Spectrophotometry of 18 Markarian Galaxies. *G. Neugebauer, E. E. Becklin, J. B. Oke, and L. Searle*. **205**, 29, 28-C7 (1976)
- SEARLE, LEONARD. The Masses of the Anomalous Cepheids in the Draco System. *Robert Zinn and Leonard Searle*. **209**, 734, 98-G2 (1976)
- SEGUIN, FREDRICK HAMPTON. Turbulence in Tidally Distorted Stars. *Fredrick Hampton Seguin*. **207**, 848, 69-F4 (1976)
- SEIELSTAD, G. A. Rapid Increase in the Size of 3C 345. *M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart*. **206**, L1, 47-A2 (1976)
- SERLEMITSOS, P. J. New Results from Long-Term Observations of Cygnus X-1. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski*. **203**, L63, 8-C2 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. I. Search for Binary Periodicity. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski*. **205**, L27, 32-B12 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. II. Evidence for Flare-dominated Intensity Variations. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski*. **205**, L79, 37-B9 (1976)
- Evidence for an 11.2 Day Periodicity from Cygnus X-2. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski*. **205**, L143, 42-C6 (1976)
- Iron Line Emission from a High-Temperature Plasma in Cassiopeia A. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank*. **206**, L41, 47-D2 (1976)
- Spectral Variability in the X-Ray Pulsar GX 1+4. *R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank*. **207**, L167, 72-C2 (1976)
- X-Ray Observations of the Vela Pulsar: Statistics and Spectrum. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank*. **208**, L67, 82-B6 (1976)
- Evidence for a 16.6 Day Period from Circinus X-1. *L. J. Kaluzienski, S. S. Holt, E. A. Boldt, and P. J. Serlemitsos*. **208**, L71, 82-B9 (1976)
- Variations in the Spectra and Pulse Period of GX 301-2. *J. H. Swank, R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, and P. J. Serlemitsos*. **209**, L57, 96-F4 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. *R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank*. **209**, L65, 96-F12 (1976)
- SEWARD, F. An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. *F. Seward, G.*

- Burginyon, R. Grader, R. Hill, T. Palmieri, P. Stoering, and A. Toor. **205**, 238, 30-E8 (1976)
- SEWARD, F. D. Evidence for "Thermal" X-Rays from the Crab Nebula. A. Toor, T. M. Palmieri, and F. D. Seward. **207**, 96, 59-A9 (1976)
- SHAFFER, D. B. Rapid Increase in the Size of 3C 345. M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart. **206**, L1, 47-A2 (1976)
- Observations of a Radio Source in the Nucleus of M81 with Dimensions Less than 1300 Astronomical Units 12:50 11/05/76. K. I. Kellermann, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, and A. Witzel. **210**, L121, 115-A6 (1976)
- SHAHAM, JACOB. Precession of the Nodes in Some Triple Stellar Systems. Tsevi Mazeh and Jacob Shaham. **205**, L147, 42-C9 (1976)
- SHANLEY, J. F. Water Vapor Emission from H II Regions and Infrared Stars. B. T. Cato, B. O. Rönnäng, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardasmenos, and J. F. Shanley. **208**, 87, 74-G11 (1976)
- SHAPIRO, I. I. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell. **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr. **206**, L107, 52-C12 (1976)
- SHAPIRO, PAUL R. Consequences of a New Hot Component of the Interstellar Medium. Paul R. Shapiro and George B. Field. **205**, 762, 39-B1 (1976)
- Time-dependent Radiative Cooling of a Hot, Diffuse Cosmic Gas, and the Emergent X-Ray Spectrum. Paul R. Shapiro and Robert T. Moore. **207**, 460, 64-C1 (1976)
- SHAPIRO, S. L. A Two-Temperature Accretion Disk Model for Cygnus X-1: Structure and Spectrum. S. L. Shapiro, A. P. Lightman, and D. M. Eardley. **204**, 187, 15-B1 (1976)
- SHAPIRO, STUART L. On the Maximum Gravitational Redshift of White Dwarfs. Stuart L. Shapiro and Saul A. Teukolsky. **203**, 697, 10-D10 (1976)
- Polarization of X-Rays from Cygnus X-1: A Test of the Accretion Disk Model. Alan P. Lightman and Stuart L. Shapiro. **203**, 701, 10-E1 (1976)
- Black Holes in X-Ray Binaries: Marginal Existence and Rotation Reversals of Accretion Disks. Stuart L. Shapiro and Alan P. Lightman. **204**, 555, 20-E5 (1976)
- Rapidly Rotating, Post-Newtonian Neutron Stars. Stuart L. Shapiro and Alan P. Lightman. **207**, 263, 60-G3 (1976)
- Why Globular Clusters Are So Spherical. Stuart L. Shapiro and Alan B. Marchant. **210**, 757, 113-D9 (1976)
- SHAVIV, G. Rotating Stellar Models According to the Quasi-dynamic Method. A. Kovetz, G. Shaviv, and S. Zisman. **206**, 809, 54-D1 (1976)
- SHAWHAN, STANLEY D. A Search for Slowly Varying Radio Continuum Emission from UV Ceti Stars. Steven R. Spangler and Stanley D. Shawhan. **205**, 472, 34-F8 (1976)
- SHAWL, STEPHEN J. The Polarization of the Infrared Source CRL 2688 (The Egg Nebula). Stephen J. Shawl and Massimo Tareghi. **204**, L25, 17-B12 (1976)
- An Optical Search for Ionized Hydrogen in Globular Clusters. Malcolm G. Smith, James E. Hesser, and Stephen J. Shawl. **206**, 66, 43-E13 (1976)
- SHIELDS, G. A. Composition Gradients across Spiral Galaxies. II. The Stellar Mass Limit. G. A. Shields and Beatrice M. Tinsley. **203**, 66, 1-E12 (1976)
- The Abundance of Nitrogen in QSOs. G. A. Shields. **204**, 330, 18-B5 (1976)
- Seyfert Galaxies with Strong Fe II Emission. J. B. Oke and G. A. Shields. **207**, 713, 68-C4 (1976)
- SHINE, R. A. Resonance-Line Transfer with Partial Redistribution. VIII. Solution in the Comoving Frame for Moving Atmospheres. Dimitri Mihalas, R. A. Shine, P. B. Kunasz, and D. G. Hummer. **205**, 492, 35-A1 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Transition-Zone Dynamics over a Sunspot. E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. A. Shine, R. G. Athay, and O. R. White. **210**, L97, 111-D11 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Velocities in the Solar Chromosphere Observed in the Si II λ 1816 Line. E. G. Chipman, E. C. Bruner, Jr., R. A. Shine, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White. **210**, L103, 111-E4 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White. **210**, L107, 111-E8 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Persistent Velocity Fields in the Chromosphere and Transition Region. B. W. Lites, E. C. Bruner, Jr., E. G. Chipman, R. A. Shine, G. J. Rottman, O. R. White, and R. G. Athay. **210**, L111, 111-E12 (1976)
- SHIPMAN, H. L. Sirius B: A Thermal Soft X-Ray Source? H. L. Shipman. **206**, L67, 47-F1 (1976)
- The Unimportance of Pressure Shifts in the Measurement of Gravitational Redshifts in White Dwarfs. H. L. Shipman and R. G. Mehan. **209**, 205, 90-B6 (1976)
- SHORE, STEVEN N. Magnetic Fields and Diffusion Processes in Peculiar A Stars. II. Precession and the Oblique Rotator Model. Steven N. Shore and Saul J. Adelman. **209**, 816, 99-E13 (1976)
- SHU, FRANK H. Gas Dynamics of Semidetached Binaries. II. The Vertical Structure of the Stream. Stephen H. Lubow and Frank H. Shu. **207**, L53, 62-E6 (1976)
- On the Structure of Contact Binaries. I. The Contact Discontinuity. Frank H. Shu, Stephen H. Lubow, and Lawrence Anderson. **209**, 536, 95-C2 (1976)
- SHUKLA, P. G. Gamma-Ray Production by the Inverse Compton Process in Interstellar Space. P. G. Shukla and J. Paul. **208**, 893, 85-G8 (1976)
- SHULMAN, S. Discovery of X-Ray Pulsations in SMC X-1. R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman. **206**, L25, 47-B13 (1976)
- X-Ray Evidence for the Supernova Origin of the North Polar Spur. R. G. Cruddace, H. Friedman, G. Fritz, and S. Shulman. **207**, 888, 70-B6 (1976)
- Soft X-Rays from Hercules X-1 During the "Off" State. G. Fritz, S. Naranan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder. **207**, L29, 62-C11 (1976)
- Soft X-Ray Emission in Eridanus: An Old Supernova Remnant? S. Naranan, S. Shulman, H. Friedman, and G. Fritz. **208**, 718, 84-A5 (1976)
- SIEBER, WOLFGANG. Pulsar Geometries. II. Decomposition of the Radiation Pattern. Ludwig Oster and Wolfgang Sieber. **203**, 233, 3-E1 (1976)
- Pulsar Geometries. III. The Hollow-Cone Model. Ludwig Oster and Wolfgang Sieber. **210**, 220, 105-D5 (1976)
- SIEGMUND, W. A. Emission Line Spectra of Individual Condensations of Herbig-Haro Objects. K.-H. Böhm, W. A. Siegmund, and R. D. Schwartz. **203**, 399, 6-B13 (1976)
- SILK, JOSEPH. The Optical and X-Ray Surface Brightness of the Crab Nebula. I. A Cosmic-Ray Diffusion Model. Stephen Lee Weinberg and Joseph Silk. **205**, 563, 35-F2 (1976)
- H₂ Recombination on Interstellar Grains. Michael J. Barlow and Joseph Silk. **207**, 131, 59-D6 (1976)
- Accretion by Galaxy Clusters and the Relationship between

- X-Ray Luminosity and Velocity Dispersion. *Joseph Silk*. **208**, 646, 83-A11 (1976)
- Interaction of the Vela Supernova Remnant with the Cloudy Interstellar Medium. *Edward B. Jenkins, Joseph Silk, and George Wallerstein*. **209**, L87, 97-A4 (1976)
- The Dynamical Interaction of a Newly Formed Protostar with Infalling Matter: The Origin of Interstellar Grains. *John Robert Burke and Joseph Silk*. **210**, 341, 107-E12 (1976)
- Ultraviolet Absorption Lines Associated with the Vela Supernova Remnant. *Edward B. Jenkins, Joseph Silk, and George Wallerstein*. **32**, 681, 43-C1 (1976) (Abstr. in **210**, 621, 110-E14)
- SILVER, E. H. Search for X-Ray Line Emission from A0620-00. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **208**, L27, 77-B13 (1976)
- The Graphite Crystal X-Ray Spectrometer on OSO-8. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **210**, 805, 114-A2 (1976)
- SILVERSMITH, ERNEST. Luminosity Effects in the Ultraviolet Spectrum of B5-B6 Stars. *Anne B. Underhill and Ernest Silversmith*. **206**, L56, 44-E11 (1976)
- SIMKIN, S. M. Optical Properties of the Radio Source PKS 0123-01 (3C 40) in Abell 194. *S. M. Simkin*. **204**, 251, 15-F10 (1976)
- SIMNETT, GEORGE M. Upper Limits to the Quiet-Time Solar Neutron Flux from 10 to 100 MeV. *Shin Moon, George M. Simnett, and R. Stephen White*. **207**, 630, 66-B1 (1976)
- SIMON, GEORGE W. On the Origin of the $2^{h}40^{m}$ Solar Oscillations. *Simon P. Worden and George W. Simon*. **210**, L163, 115-D4 (1976)
- SIMON, M. Solar Brightness Temperature Distribution at 350 and 450 Microns. *G. Righini and M. Simon*. **203**, L95, 8-E9 (1976)
- 3 Millimeter and 350 Micron Continuum Observations of the DR-21 and Sagittarius B2 Regions. *G. Righini, M. Simon, and R. R. Joyce*. **207**, 119, 59-C7 (1976)
- SIMON, NORMAN. Evidence Favoring Nonevolutionary Cepheid Masses. *Norman Simon and Edward G. Schmidt*. **205**, 162, 29-F5 (1976)
- SIMPSON, J. A. Evidence for Interplanetary Acceleration of Nucleons in Corotating Interaction Regions. *C. W. Barnes and J. A. Simpson*. **210**, L91, 111-D4 (1976)
- SINGER, SIDNEY. Analysis of a Scorpius X-1 X-Ray Spectrum Obtained with Cooled Silicon (Li) Detectors. *John G. Laros and Sidney Singer*. **205**, 550, 35-E3 (1976)
- SION, EDWARD M. The Pulsational Properties of High-Luminosity Degenerate Stars with Hydrogen Burning near the Surface. *Samuel C. Vila and Edward M. Sion*. **207**, 820, 69-D4 (1976)
- The Pulsational Properties of High-Luminosity Degenerate Stars with Helium Burning near the Surface. *Edward M. Sion and Samuel C. Vila*. **209**, 850, 100-A5 (1976)
- SLEE, O. B. Radio Emission from a Source near the Flare Star AD Leonis. *R. D. Robinson, O. B. Slee, and A. G. Little*. **203**, L91, 3-E6 (1976)
- SLUTZ, STEPHEN. On the Acceleration on Shock Waves in the Atmosphere of Cool Mira Variable Giants. *Stephen Slutz*. **210**, 750, 113-D2 (1976)
- SMARR, LARRY L. The Binary Pulsar: Physical Processes, Possible Companions, and Evolutionary Histories. *Larry L. Smarr and Roger Blandford*. **207**, 574, 65-E2 (1976)
- SMITH, BARHAM W. Accretion by the Galaxy: Effects of Radiative Cooling on the Flow Structure and Infall Rate. *Donald P. Cox and Barham W. Smith*. **203**, 361, 5-F11 (1976)
- Radiative Cooling of a Low-Density Plasma. *John C. Raymond, Donald P. Cox, and Barham W. Smith*. **204**, 290, 16-C1 (1976)
- SMITH, GERALD R. On Jovian Temperature Profiles Obtained by Inverting Thermal Spectra. *L. Wallace and Gerald R. Smith*. **203**, 760, 11-B12 (1976)
- The 800-1200 Inverse Centimeter Absorption Spectrum of Jupiter. *Stephen T. Ridgway, L. Wallace, and Gerald R. Smith*. **207**, 1002, 71-C11 (1976)
- SMITH, HARDING E. The Absorption-Line Spectrum of the BL Lacertae Object AO 0235+164. *E. M. Burbidge, R. D. Caldwell, Harding E. Smith, J. Liebert, and H. Spinrad*. **205**, L117, 42-A10 (1976)
- Spectrophotometric Observations of N Galaxies at Large Redshift: PKS 0353+027, 3C 99, 3C 467. *Harding E. Smith, Hyron Spinrad, and Richard Hunstead*. **206**, 345, 48-A4 (1976)
- The Distant N Galaxy 3C 318. *Hyron Spinrad and Harding E. Smith*. **206**, 355, 48-B4 (1976)
- PKS 0116+082 and 3C 330: Two Distant Cluster Radio Galaxies. *Hyron Spinrad, James Liebert, Harding E. Smith, and Richard Hunstead*. **206**, L79, 52-A6 (1976)
- Observations of High-Redshift QSOs from a Molonglo Faint Source Survey. *Jack A. Baldwin, Harding E. Smith, E. Margaret Burbidge, Cyril Hazard, Hugh S. Murdoch, and David L. Jauncey*. **206**, L83, 52-A13 (1976)
- Photography of 3CR Radio Source Fields: Three New Optical Identifications. *Harding E. Smith, E. Margaret Burbidge, and Hyron Spinrad*. **210**, 627, 112-A4 (1976)
- SMITH, HARLAN J. Observational Evidence against a Time Variation in Planck's Constant. *Jan-Erik Solheim, Thomas G. Barnes III, and Harlan J. Smith*. **209**, 330, 93-B1 (1976)
- SMITH, J. R. Infrared Light Variations of Wolf-Rayet Stars. *J. A. Hackwell, R. D. Gehrz, J. R. Smith, and D. W. Strecker*. **210**, 137, 104-E5 (1976)
- SMITH, MALCOLM G. Globular Clusters in the Hydra I Cluster of Galaxies. *Malcolm G. Smith and Daniel W. Weedman*. **205**, 709, 38-E2 (1976)
- An Optical Search for Ionized Hydrogen in Globular Clusters. *Malcolm G. Smith, James E. Hesser, and Stephen J. Shawl*. **206**, 66, 43-E13 (1976)
- A Survey for Emission-Line Galaxies and Quasars. III. A List of Nine New Optically Selected QSOs with $2.5 < z < 3.1$. *Malcolm G. Smith*. **206**, L125, 56-C5 (1976)
- The Space Distribution of Globular Clusters in M87. *William E. Harris and Malcolm G. Smith*. **207**, 1036, 71-F10 (1976)
- The Emission-Line Spectra of Nine Newly Discovered, Optically Selected Quasars with $2.5 < z < 3.1$. *Patrick S. Osmer and Malcolm G. Smith*. **210**, 267, 105-G10 (1976)
- Emission-Line Galaxies and Quasars. II. The Classification Systems and List N1, Declination $\leq -27^{\circ}5$, Galactic Latitude $\geq +20^{\circ}$. *Malcolm G. Smith, Cecilia Aguirre, and Mario Zemelman*. **32**, 217, 25-F1 (1976) (Abstr. in **208**, 955, 86-E4)
- SMITH, MYRON A. Applications of Fourier Analysis to Broadening of Stellar Line Profiles. II. A Saturated Line in 32 Aquarii and in Sirius. *Myron A. Smith*. **203**, 603, 9-D9 (1976)
- Asymmetries in the Absorption Lines of Manganese Stars. *Myron A. Smith and Sidney B. Parsons*. **205**, 430, 34-C7 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. III. Solar Microturbulence and Macroturbulence from Iron Lines. *Myron A. Smith, L. Testerman, and J. C. Evans*. **207**, 308, 61-C6 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. IV. A Technique for Separating Macroturbulence from Rotation in Solar-Type Stars. *Myron A. Smith*. **208**, 487, 80-C4 (1976)
- SMITH, R. A. Neutron Star Structure: Theory, Observation, and Speculation. *V. R. Pandharipande, D. Pines, and R. A. Smith*. **208**, 550, 80-G13 (1976)
- SMITH, ROBERT A. Theory of Type IIIb Solar Radio Bursts. *Robert A. Smith and Jérôme de la Noë*. **207**, 605, 65-G5 (1976)
- SMITH, WM. HAYDEN. Radiative Processes Affecting the Abundance of Interstellar OH. *Wm. Hayden Smith and*

- Ellen G. Zweibel. **207**, 758, 68-F9 (1976)
- SNEDEN, C. A Statistical Method for Treating Molecular Line Opacities. C. Sneden, H. R. Johnson, and B. M. Krupp. **204**, 281, 16-B5 (1976)
- SNEDEN, CHRISTOPHER. The Chemical Composition of Two Subgiant CH Stars. Christopher Sneden and Howard E. Bond. **204**, 810, 24-G7 (1976)
- The Ionization Structure of H II Regions: The Effects of Stellar Metal Opacity. Bruce Balick and Christopher Sneden. **208**, 336, 78-E8 (1976)
- SNELL, R. L. The $^{12}\text{C}/^{13}\text{C}$ Ratio in Stellar Atmospheres. VI. Five Luminous Cool Stars. K. H. Hinkle, D. L. Lambert, and R. L. Snell. **210**, 684, 112-F4 (1976)
- SNIDER, J. L. The Broadening of the Calcium Resonance Line in a High-Temperature Helium Atmosphere. R. D. Driver and J. L. Snider. **208**, 518, 80-E7 (1976)
- SNOW, T. P. The Far-Ultraviolet Spectrum of Sirius B from Copernicus. Malcolm P. Savedoff, H. M. Van Horn, F. Wesemael, L. H. Auer, T. P. Snow, and D. G. York. **207**, L45, 62-D12 (1976)
- SNOW, THEODORE P., JR. Evidence for Mass Loss at Moderate to High Velocity in Be Stars. Theodore P. Snow, Jr. and J. M. Marlborough. **203**, L87, 8-E2 (1976)
- An Analysis of the Interstellar Material in the Line of Sight toward Omicron Persei. Theodore J. Snow, Jr. **204**, 759, 24-C11 (1976)
- The Detection of Interstellar OH Absorption in the Zeta Ophiuchi Cloud. Theodore P. Snow, Jr. **204**, L127, 27-B6 (1976)
- Spectroscopic Observations of the Candidate Star Coincident with A0620-00. Theodore Gull, Donald G. York, Theodore P. Snow, Jr., and Karl G. Henize. **206**, 260, 45-F6 (1976)
- Copernicus Ultraviolet Observations of Mass-Loss Effects in O and B Stars. Theodore P. Snow, Jr. and Donald C. Morton. **32**, 429, 30-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- SNYDER, L. E. HCN, X-ogen (HCO^+), and U90.66 Emission Spectra from L134. L. E. Snyder and J. M. Hollis. **204**, L139, 27-C4 (1976)
- The Prospects for Astronomical Optical Rotary Dispersion Studies. P. T. Giguere, L. E. Snyder, and F. S. Richardson. **208**, 365, 78-G10 (1976)
- Radio Detection of the Interstellar Formyl Radical. L. E. Snyder, J. M. Hollis, and B. L. Ulich. **208**, L91, 82-D1 (1976)
- Detection, Identification, and Observations of Interstellar H^{13}CO^+ . L. E. Snyder, J. M. Hollis, F. J. Lovas, and B. L. Ulich. **209**, 67, 88-F2 (1976)
- Radio Observations of OH in Comet West 1975n. L. E. Snyder, J. C. Webber, R. M. Crutcher, and G. W. Swenson, Jr. **209**, L49, 92-D6 (1976)
- Radio Detection of Interstellar DCO^+ . J. M. Hollis, L. E. Snyder, F. J. Lovas, and D. Buhl. **209**, L83, 97-A1 (1976)
- SNYDER, LEWIS E. Millimeter Emission Lines in Orion A. Frank J. Lovas, Donald R. Johnson, David Buhl, and Lewis E. Snyder. **209**, 770, 99-B6 (1976)
- SNYDER, W. Soft X-Rays from Hercules X-1 During the "Off" State. G. Fritz, S. Naranan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder. **207**, L29, 62-C11 (1976)
- SOFIA, S. The Evolution of Rotating Stars. I. Method and Exploratory Calculations for a $7 M_{\odot}$ Star. A. S. Endal and S. Sofia. **210**, 184, 105-A10 (1976)
- SOFIA, SABATINO. Effects of Tidal Distortion on Binary-Star Velocity Curves and Ellipsoidal Variation. Robert E. Wilson and Sabatino Sofia. **203**, 182, 3-A2 (1976)
- The Positions and Proper Motions of HZ Herculis and 12 Neighboring Stars. George Gatewood and Sabatino Sofia. **204**, L89, 22-C3 (1976)
- The Distribution of the Galactic Compact X-Ray Sources: A Statistical Analysis. Sabatino Sofia and François Wesemael. **205**, 233, 30-E3 (1976)
- SOIFER, B. T. Submillimeter Observations of NGC 2024, OMC-2, and Mon R-2. H. S. Hudson and B. T. Soifer. **206**, 100, 44-A5 (1976)
- Infrared Observations of Ices and Silicates in Molecular Clouds. K. M. Merrill, R. W. Russell, and B. T. Soifer. **207**, 763, 68-G1 (1976)
- Infrared Spectrophotometry of OH 231.8+4.2 = OH 0739-14. F. C. Gillett and B. T. Soifer. **207**, 780, 69-A4 (1976)
- 2-4 Micron Spectrophotometric Observations of the Galactic Center. B. T. Soifer, R. W. Russell, and K. M. Merrill. **207**, L83, 67-B1 (1976)
- Far-Infrared Observations of IRC +10216. M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook. **208**, 396, 79-C1 (1976)
- 16-25 Micron Spectroscopy of the Trapezium and BN-KL Source in Orion. W. J. Forrest and B. T. Soifer. **208**, L129, 87-A1 (1976)
- 2-4 Micron Spectrophotometric Observations of Compact H II Regions. B. T. Soifer, R. W. Russell, and K. M. Merrill. **210**, 334, 107-E5 (1976)
- SOLHEIM, JAN-ERIK. Observational Evidence against a Time Variation in Planck's Constant. Jan-Erik Solheim, Thomas G. Barnes III, and Harlan J. Smith. **209**, 330, 93-B1 (1976)
- SOLINGER, ALAN. The Electromagnetic Background: Limitations on Models of Unseen Matter. David Eichler and Alan Solinger. **203**, 1, 1-A4 (1976)
- SONNERUP, BENGT U. O. Compressible Magnetic Field Reconnection: A Slow Wave Model. Chao-Kung Yang and Bengt U. Ö. Sonnerup. **206**, 570, 50-D4 (1976)
- SOSKEY, D. G. The Ultraviolet Variations of Iota Cassiopeiae. M. R. Molnar, A. D. Mallama, A. V. Holm, and D. G. Soskey. **209**, 146, 89-E2 (1976)
- SOUTHWICK, ROBERT G. The Variable Linear Polarization of Cygnus X-1, 1974-1975 Observations. James C. Kemp, Robert G. Southwick, and Richard J. Rudy. **210**, 239, 105-E10 (1976)
- SPANGLER, S. R. Simultaneous Radio and Optical Observations of UV Ceti-Type Flare Stars. S. R. Spangler and T. J. Moffett. **203**, 497, 7-C11 (1976)
- SPANGLER, STEVEN R. A Search for Slowly Varying Radio Continuum Emission from UV Ceti Stars. Steven R. Spangler and Stanley D. Shawhan. **205**, 472, 34-F8 (1976)
- Spectrophotometry of the Flare Star BY Draconis. John D. Fix and Steven R. Spangler. **205**, L163, 42-D9 (1976)
- A Search for Variable 430 MHz Continuum Emission from Red Giant Stars. John D. Fix and Steven R. Spangler. **209**, 503, 94-G6 (1976)
- SPARKS, W. M. A Single-Star Interpretation of Nova Cygni 1975. S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. M. Van Horn. **208**, L23, 77-B10 (1976)
- SPARKS, WARREN M. CNO Abundances and Hydrodynamic Models of the Nova Outburst. IV. Comparison with Observations. Warren M. Sparks, Sumner Starrfield, and James W. Truran. **208**, 819, 85-B3 (1976)
- SPIEGEL, E. A. Convective Instability in a Compressible Atmosphere. II. D. O. Gough, D. R. Moore, E. A. Spiegel, and N. O. Weiss. **206**, 536, 50-A12 (1976)
- The Equations of Photohydrodynamics. S.-H. Hsieh and E. A. Spiegel. **207**, 244, 60-E12 (1976)
- Ring Galaxies. I. J. C. Theys and E. A. Spiegel. **208**, 650, 83-B1 (1976)
- SPIEGEL, EDWARD A. Stellar Convection Theory. I. The Anelastic Modal Equations. Jean Latour, Edward A. Spiegel, Juri Toomre, and Jean-Paul Zahn. **207**, 233, 60-E1 (1976)
- Stellar Convection Theory. II. Single-Mode Study of the Second Convection Zone in an A-Type Star. Juri Toomre, Jean-Paul Zahn, Jean Latour, and Edward A. Spiegel. **207**, 545, 65-C1 (1976)

- SPINRAD, H. The Absorption-Line Spectrum of the BL Lacertae Object AO 0235+164. *E. M. Burbidge, R. D. Caldwell, Harding E. Smith, J. Liebert, and H. Spinrad.* **205**, L117, 42-A10 (1976)
- SPINRAD, HYRON. Spectrophotometric Observations of N Galaxies at Large Redshift: PKS 0353+027, 3C 99, 3C 467. *Harding E. Smith, Hyron Spinrad, and Richard Hunstead.* **206**, 345, 48-A4 (1976)
- The Distant N Galaxy 3C 318. *Hyron Spinrad and Harding E. Smith.* **206**, 355, 48-B4 (1976)
- PKS 0116+082 and 3C 330: Two Distant Cluster Radio Galaxies. *Hyron Spinrad, James Liebert, Harding E. Smith, and Richard Hunstead.* **206**, L79, 52-A6 (1976)
- Identification and Redshift of the Triple Radio Source 3C 154. *Hyron Spinrad and James Liebert.* **208**, 292, 78-B7 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. *Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer.* **209**, 525, 95-B4 (1976)
- Photography of 3CR Radio Source Fields: Three New Optical Identifications. *Harding E. Smith, E. Margaret Burbidge, and Hyron Spinrad.* **210**, 627, 112-A4 (1976)
- SPITZER, LYMAN, JR. Components in Interstellar Molecular Hydrogen. *Lyman Spitzer, Jr. and Winifred A. Morton.* **204**, 731, 24-A7 (1976)
- Note on the Collapse of Magnetic Interstellar Clouds. *Telemachos Ch. Mouschovias and Lyman Spitzer, Jr.* **210**, 326, 1007-D11 (1976)
- SPROTT, G. F. OSO-7 Observations of High Galactic Latitude X-Ray Sources. *T. H. Markert, C. R. Canizares, G. W. Clark, F. K. Li, P. L. Northridge, G. F. Sprott, and G. F. Wargo.* **206**, 265, 45-F13 (1976)
- SPROTT, GEORGE F. OSO-7 Observations of the X-Ray Nova 3U 1543-47. *Fuk Kwok Li, George F. Sprott, and George W. Clark.* **203**, 187, 3-A7 (1976)
- SPRUCH, LARRY. Energy Levels of Hydrogen in Magnetic Fields of Arbitrary Strength. *A. R. P. Rau and Larry Spruch.* **207**, 671, 66-E1 (1976)
- SPYROU, N. The Center of Mass in the Post-Newtonian Approximation of General Relativity. *G. Contopoulos and N. Spyrou.* **205**, 592, 36-A3 (1976)
- Post-Galilean Invariance of the Post-Newtonian Eulerian Equations of Hydrodynamics. *N. Spyrou.* **209**, 243, 90-E5 (1976)
- SRAHEK, R. A. The Radio Brightness Distribution of Eight Markarian Galaxies. *R. A. Sramek and H. M. Tovmassian.* **207**, 725, 68-D5 (1976)
- SRAHEK, RICHARD A. The Radio Spectra of Markarian Galaxies. *Gabriel Kojoian, Richard A. Sramek, Dale F. Dickinson, H. Tovmassian, and C. R. Purton.* **203**, 323, 5-D1 (1976)
- STARRFIELD, S. A Single-Star Interpretation of Nova Cygni 1975. *S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. M. Van Horn.* **208**, L23, 77-B10 (1976)
- STARRFIELD, SUMNER. CNO Abundances and Hydrodynamic Models of the Nova Outburst. IV. Comparison with Observations. *Warren M. Sparks, Sumner Starrfield, and James W. Truran.* **208**, 819, 85-B3 (1976)
- STAUBERT, R. The 4.8 Hour Variation of Cygnus X-3 at High X-Ray Energies. *W. Pietsch, E. Kendziorra, R. Staubert, and J. Trümper.* **203**, L67, 8-C6 (1976)
- STEARNS, SHIRLEY A. Three-Color Photometry of HDE 226868: The Optical Counterpart of Cygnus X-1. *Daniel F. Lester, Ira G. Nolt, Shirley A. Stearns, Peter Straton, and James V. Radostitz.* **205**, 855, 40-B12 (1976)
- STECKER, F. W. Photonuclear Interactions of Ultrahigh-Energy Cosmic Rays and Their Astrophysical Consequences. *J. L. Puget, F. W. Stecker, and J. H. Bredekamp.* **205**, 638, 36-D6 (1976)
- Prediction of the Diffuse Far-Infrared Flux from the Galactic Plane. *G. G. Fazio and F. W. Stecker.* **207**, L49, 62-E2 (1976)
- STEFFEN, P. Cygnus A at 8.5 Millimeter Wavelength. *O. Hachenberg, E. Fürst, W. Harth, P. Steffen, W. Wilson, and W. Hirth.* **206**, L19, 47-B6 (1976)
- STEIGMAN, GARY. Stellar Production as a Source of ^3He in the Interstellar Medium. *Robert T. Rood, Gary Steigman, and Beatrice M. Tinsley.* **207**, L57, 62-E9 (1976)
- STEIN, ROBERT F. Radiative Shock Dynamics. I. The Lyman Continuum. *Richard I. Klein, Robert F. Stein, and Wolfgang Kalkofen.* **205**, 499, 35-A8 (1976)
- STEIN, WAYNE A. The Origin of Ultraviolet and Infrared Continuum Radiation from Seyfert Galaxies. *Wayne A. Stein and Daniel W. Weedman.* **205**, 44, 28-D8 (1976)
- STEINOLFSON, RICHARD S. Dynamical Response of the Solar Corona. I. Basic Formulations. *Y. Nakagawa and Richard S. Steinolfson.* **207**, 296, 61-B8 (1976)
- Dynamical Response of the Solar Corona. II. Numerical Simulations near the Sun. *Richard S. Steinolfson and Yoshinari Nakagawa.* **207**, 300, 61-B12 (1976)
- STELLINGWERF, R. F. The Role of Turbulent Pressure in Mixing-Length Convection. *R. F. Stellingwerf.* **206**, 543, 50-B5 (1976)
- STENCIL, ROBERT E. Emission Lines in the Wings of Ca II H and K. I. Initial Solar Observations and Implications. *Richard C. Canfield and Robert E. Stencil.* **209**, 618, 96-B3 (1976)
- STEPHENS, T. C. Surface Brightness Profiles of Dark Nebulae: The Thumbprint Nebula in Chamaeleon. *M. P. FitzGerald, T. C. Stephens, and A. N. Witt.* **208**, 709, 83-G9 (1976)
- STERN, ROBERT. Discovery of a Nonsolar Extreme-Ultraviolet Source. *Michael Lampton, Bruce Margon, Francesco Paresce, Robert Stern, and Stuart Bowyer.* **203**, L71, 8-C9 (1976)
- An Observation of the Diffuse Soft X-Ray/Extreme-Ultraviolet Background. *Webster Cash, Roger Malina, and Robert Stern.* **204**, L7, 17-A8 (1976)
- An Intense Extreme-Ultraviolet Source in Cetus. *Bruce Margon, Michael Lampton, Stuart Bowyer, Robert Stern, and Francesco Paresce.* **210**, L79, 111-C6 (1976)
- STETSENKO, S. G. Abundances of $Z > 52$ Nuclei in Galactic Cosmic Rays: Long-Term Averages Based on Studies of Pallasites. *O. Otgonsuren, V. P. Perelygin, S. G. Stetsenko, N. N. Gavrilova, C. Fiéni, and P. Pellas.* **210**, 258, 105-G1 (1976)
- STEWART, R. F. Oscillator Strengths in the Mg Isoelectronic Sequence. *G. A. Victor, R. F. Stewart, and C. Laughlin.* **31**, 237, 15-D1 (1976) (Abstr. in **206**, 343, 46-E11)
- STIER, MARK. The Photometric and Spectrographic Histories of HD 245770 \pm A0535+26: The Transient X-Ray Source. *Mark Stier and William Liller.* **206**, 257, 45-F3 (1976)
- ST. JOHN, RICHARD H. Optical Study of the X-Ray Binary Hercules X-1. *Richard H. St. John.* **208**, L31, 77-C3 (1976)
- STOCKMAN, H. S. The Origin of Optical Polarization in NGC 1068. *J. R. P. Angel, H. S. Stockman, N. J. Woolf, E. A. Beaver, and P. G. Martin.* **206**, L5, 47-A5 (1976)
- STOCKTON, ALAN. The Structure and Spectrum of Nebulosity Associated with the QSO 4C 37.43. *Alan Stockton.* **205**, L113, 42-A5 (1976)
- Spectroscopic Observations of Seyfert Galaxy Nuclei. *J. W. Glaspey, G. A. H. Walker, and Alan Stockton.* **210**, 27, 103-C6 (1976)
- STOERING, P. An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. *F. Seward, G. Burginyon, R. Grader, R. Hill, T. Palmieri, P. Stoering, and A. Toor.* **205**, 238, 30-E8 (1976)
- STOKES, GERALD M. Observations of Interstellar Titanium toward 47 Stars. *Gerald M. Stokes and L. M. Hobbs.* **208**, L95, 82-D5 (1976)
- STOKES, ROBERT A. Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom.* **203**, L43, 4-F4 (1976)

- Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths: Erratum. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom.* **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L43, 4-F4)
- STONE, E. C. Isotopic and Elemental Composition of the Anomalous Low-Energy Cosmic-Ray Fluxes. *R. A. Mewaldt, E. C. Stone, S. B. Vidor, and R. E. Vogt.* **205**, 931, 41-A9 (1976)
- The Isotopic Composition of Hydrogen and Helium in Low-Energy Cosmic Rays. *R. A. Mewaldt, E. C. Stone, and R. E. Vogt.* **206**, 616, 51-A1 (1976)
- STONER, JOHN O., JR. Experimental Limits on the Velocities of Sodium Atoms Sputtered from Solid Surfaces by Hydrogen Ions. *John O. Stoner, Jr.* **207**, L141, 67-F3 (1976)
- STONER, RONALD. The Effect of Suprathermal Protons on the Physical Conditions in Seyfert Galaxy Nuclei. II. *Ronald Stoner and Roger Ptak.* **208**, 298, 78-B12 (1976)
- On the Interpretation of Fe II Emission Profiles in Seyfert Galaxies and QSOs. *Roger Ptak and Ronald Stoner.* **210**, 25, 103-C4 (1976)
- STOREY, J. W. V. Detection of Interstellar Vibrationally Excited Cyanoacetylene. *F. O. Clark, R. D. Brown, P. D. Godfrey, J. W. V. Storey, and D. R. Johnson.* **210**, L139, 115-B9 (1976)
- STOTHERS, RICHARD. Evolutionary Problems of Cepheids and Other Giants Investigated with New Radiative Opacities. *T. Richard Carson and Richard Stothers.* **204**, 461, 19-E1 (1976)
- Stellar Evolution at High Mass with Semiconvective Mixing According to the Schwarzschild Criterion. *Richard Stothers and Chao-wen Chin.* **204**, 472, 19-E12 (1976)
- Excitation of Pulsations in the CNO Ionization Zone of Luminous Stars. *Richard Stothers.* **204**, 853, 25-C8 (1976)
- A New Interpretation of Luminous Blue Stars. *Richard Stothers.* **209**, 800, 99-D11 (1976)
- Theoretical Models of Beta Cephei Stars Constructed with New Radiative Opacities. *Richard Stothers.* **210**, 434, 108-E9 (1976)
- STRATON, PETER. Three-Color Photometry of HDE 226868: The Optical Counterpart of Cygnus X-1. *Daniel F. Lester, Ira G. Nolt, Shirley A. Stearns, Peter Straton, and James V. Radostitz.* **205**, 855, 40-B12 (1976)
- STRAUS, JOE M. Effects of Convective Overshoot on Lithium Depletion in Main-Sequence Stars. *Joe M. Straus, J. B. Blake, and David N. Schramm.* **204**, 481, 19-F7 (1976)
- Penetrative Convection in a Layer of Fluid Heated from Within. *Joe M. Straus.* **209**, 179, 89-G7 (1976)
- STRAUSS, F. M. Rolling Motions in an Inner Spiral Arm. *F. M. Strauss and W. Poeppel.* **204**, 94, 14-A11 (1976)
- STRECKER, D. W. Infrared Light Variations of Wolf-Rayet Stars. *J. A. Hackwell, R. D. Gehrz, J. R. Smith, and D. W. Strecker.* **210**, 137, 104-E5 (1976)
- Combined Ground and Aircraft Based 1-4 Micron Spectra of LkH α 101. *Rodger I. Thompson, Edwin F. Erickson, Fred C. Witteborn, and D. W. Strecker.* **210**, L31, 106-D1 (1976)
- STRITTMATTER, P. A Single-Star Interpretation of Nova Cygni 1975. *S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. M. Van Horn.* **208**, L23, 77-B10 (1976)
- STRITTMATTER, P. A. The Redshift of 0938+119. *E. A. Beaver, R. Harms, C. Hazard, H. S. Murdoch, R. F. Carswell, and P. A. Strittmatter.* **203**, L5, 4-C6 (1976)
- Slow Mass Transfer in Semidetached Binaries. *J. P. Pratt and P. A. Strittmatter.* **204**, L29, 17-C2 (1976)
- Detection of a He I 4517 Å Absorption Feature in the DB White Dwarf GD 190. *James Liebert, E. A. Beaver, J. W. Robertson, and P. A. Strittmatter.* **204**, L119, 27-A10 (1976)
- TV Spectroscopy of Absorption Lines in the Far-Red of PHL 957. *G. R. Gilbert, J. R. P. Angel, S. A. Grandi, G. D. Coleman, P. A. Strittmatter, R. H. Cromwell, and E. B. Jensen.* **206**, L129, 56-C12 (1976)
- STROM, K. M. Color and Metallicity Gradients in E and S0 Galaxies. *S. E. Strom, K. M. Strom, J. W. Goad, F. J. Vrba, and W. Rice.* **204**, 684, 23-E3 (1976)
- Density Waves in the Disks of Two Spiral Galaxies. *S. E. Strom, E. B. Jensen, and K. M. Strom.* **206**, L11, 47-A10 (1976)
- Composition Gradients in Spiral Galaxies: A Consistency Check on the Density-Wave Theory. *E. B. Jensen, K. M. Strom, and S. E. Strom.* **209**, 748, 99-A1 (1976)
- The Nature of the Objects of Joy: A Study of the T Tauri Phenomenon. *A. E. Rydgren, S. E. Strom, and K. M. Strom.* **30**, 307, 6-A1 (1976) (Abstr. in **204**, 312, 16-D9)
- STROM, R. G. Radio-optical Candidates for the High-Latitude X-Ray Sources 3U 1555+27 and 3U 1809+50. *Neta A. Bahcall, D. E. Harris, and R. G. Strom.* **209**, L17, 92-B3 (1976)
- STROM, S. E. Color and Metallicity Gradients in E and S0 Galaxies. *S. E. Strom, K. M. Strom, J. W. Goad, F. J. Vrba, and W. Rice.* **204**, 684, 23-E3 (1976)
- Density Waves in the Disks of Two Spiral Galaxies. *S. E. Strom, E. B. Jensen, and K. M. Strom.* **206**, L11, 47-A10 (1976)
- Composition Gradients in Spiral Galaxies: A Consistency Check on the Density-Wave Theory. *E. B. Jensen, K. M. Strom, and S. E. Strom.* **209**, 748, 99-A1 (1976)
- The Nature of the Objects of Joy: A Study of the T Tauri Phenomenon. *A. E. Rydgren, S. E. Strom, and K. M. Strom.* **30**, 307, 6-A1 (1976) (Abstr. in **204**, 312, 16-D9)
- STURROCK, P. A. The Distribution of Redshifts of Quasars and Related Objects. *J. W. Knight, P. A. Sturrock, and P. Switzer.* **203**, 286, 5-A5 (1976)
- Pulsar Extinction. *P. A. Sturrock, K. Baker, and J. S. Turk.* **206**, 273, 45-G9 (1976)
- SUENRAM, RICHARD D. Laboratory Microwave Spectrum of Cyanamide. *Donald R. Johnson, Richard D. Suenram, and Walter J. Lafferty.* **208**, 245, 76-E9 (1976)
- SUFFERN, K. G. The Dynamic Instability of Isothermal Relativistic Star Clusters. *K. G. Suffern and E. D. Fackerell.* **203**, 477, 7-B5 (1976)
- SULENTIC, JACK W. A BL Lacertae Object near the Spiral Galaxy NGC 6503. *Halton Arp, Jack W. Sulentic, A. G. Willis, and H. R. de Ruiter.* **207**, L13, 62-B1 (1976)
- Radio Emission in Peculiar Galaxies. *Jack W. Sulentic.* **32**, 171, 25-A2 (1976) (Abstr. in **208**, 956, 86-E5)
- SUME, A. Radio Observations of Interstellar CH. *I. O. E. H. Rydbeck, E. Kollberg, A. Hjalmarson, A. Sume, J. Ell  r, and W. M. Irvine.* **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- SUMMERS, D. An Asymptotic Analysis of the Viscous Two-Fluid Solar Wind Equations. *D. Summers.* **208**, 587, 81-C11 (1976)
- SUNTZEFF, NICHOLAS. The Origin and Evolution of RR Lyrae Stars of High Metal Abundance. *Ronald E. Taam, Robert P. Kraft, and Nicholas Suntzeff.* **207**, 201, 60-B10 (1976)
- SURMELIAN, G. L. Energy Spectrum of Hydrogen-like Atoms in a Strong Magnetic Field: Erratum. *G. L. Surmelian and R. F. O'Connell.* **204**, 311, 16-D8 (1976) (Orig. paper in **190**, 741, 37-D13)
- SUTHERLAND, PETER. Current Flow in Pulsar Magnetospheres. *Andrew Cheng, Malvin Ruderman, and Peter Sutherland.* **203**, 209, 3-C5 (1976)
- Neutrino Pair Emission from Finite-Temperature Neutron Superfluid and the Cooling of Young Neutron Stars. *Elliott Flowers, Malvin Ruderman, and Peter Sutherland.* **205**, 541, 35-D8 (1976)
- SUTHERLAND, PETER G. Neutrino-Neutrino Scattering and Supernovae. *Elliott G. Flowers and Peter G. Sutherland.* **208**, L19, 77-B7 (1976)
- SUTTON, E. C. Heterodyne Detection of CO $_2$ Emission Lines and Wind Velocities in the Atmosphere of Venus. *A. L. Betz, M. A. Johnson, R. A. McLaren, and E. C. Sutton.* **208**, L141, 87-B4 (1976)

- Nonthermal 10 Micron CO₂ Emission Lines in the Atmospheres of Mars and Venus. *M. A. Johnson, A. L. Betz, R. A. McLaren, E. C. Sutton, and C. H. Townes.* **208**, L145, 87-B8 (1976)
- SWANK, J. H. Iron Line Emission from a High-Temperature Plasma in Cassiopeia A. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **206**, L41, 47-D2 (1976)
- Spectral Variability in the X-Ray Pulsar GX 1+4. *R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **207**, L167, 72-C2 (1976)
- X-Ray Observations of the Vela Pulsar: Statistics and Spectrum. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **208**, L67, 82-B6 (1976)
- Variations in the Spectra and Pulse Period of GX 301-2. *J. H. Swank, R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, and P. J. Serlemitsos.* **209**, L57, 96-F4 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. *R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **209**, L65, 96-F12 (1976)
- SWARTZ, K. The Long-Term Intensity Behavior of Centaurus X-3. *E. J. Schreier, K. Swartz, R. Giacconi, G. Fabbiano, and J. Morin.* **204**, 539, 20-D2 (1976)
- SWEIGART, ALLEN V. Horizontal-Branch Evolution with Semiconvection. II. Theoretical Sequences. *Allen V. Sweigart and Peter G. Gross.* **32**, 367, 29-A2 (1976) (Abstr. in **209**, 650, 96-D11)
- SWENSON, G. W., JR. Radio Observations of OH in Comet West 1975n. *L. E. Snyder, J. C. Webber, R. M. Crutcher, and G. W. Swenson, Jr.* **209**, L49, 92-D6 (1976)
- SWINGS, J. P. Isotopic Abundances of Hg in Mercury Stars Inferred from Hg II λ 3984. *R. E. White, Arthur H. Vaughan, Jr., G. W. Preston, and J. P. Swings.* **204**, 131, 14-D13 (1976)
- 8200 to 11200 Å Spectra of Peculiar Emission-Line Objects with Infrared Excess. *Y. Andriolat and J. P. Swings.* **204**, L123, 27-B1 (1976)
- SWITZER, P. The Distribution of Redshifts of Quasars and Related Objects. *J. W. Knight, P. A. Sturrock, and P. Switzer.* **203**, 286, 5-A5 (1976)
- SZANTO, P. G. The Microwave Spectrum of Hydrogen Isocyanide. *R. J. Saykally, P. G. Szanto, T. G. Anderson, and R. C. Woods.* **204**, L143, 27-C8 (1976)
- SZANTO, PETER G. Laboratory Microwave Spectrum and Rest Frequencies of the N₂H⁺ Ion. *Richard J. Saykally, Thomas A. Dixon, Thomas G. Anderson, Peter G. Szanto, and R. Claude Woods.* **205**, L101, 37-D1 (1976)
- SZEIDL, B. The Three Radial Modes and Evolutionary State of AC Andromedae. *W. S. Fitch and B. Szeidl.* **203**, 616, 9-E8 (1976)
- SZKODY, PAULA. Observed Pulsations in Dwarf Novae at Maximum. *Paula Szkody.* **207**, 190, 60-A13 (1976)
- The Minimum State of Dwarf Novae. *Paula Szkody.* **207**, 824, 69-D8 (1976)
- A Study of the Rise to Maximum and the Decline in Dwarf Novae. *Paula Szkody.* **210**, 168, 104-G8 (1976)
- TAAM, RONALD E. Radiative Transport in Circumstellar Dust Shells. *Ronald E. Taam and Richard D. Schwartz.* **204**, 842, 25-B11 (1976)
- The Origin and Evolution of RR Lyrae Stars of High Metal Abundance. *Ronald E. Taam, Robert P. Kraft, and Nicholas Suntzeff.* **207**, 201, 60-B10 (1976)
- TABOR, JAMES E. Radiative Opacity Tables of 40 Stellar Mixtures. *Arthur N. Cox and James E. Tabor.* **31**, 271, 15-G1 (1976) (Abstr. in **206**, 342, 46-E10)
- TADAMARU, EUGENE. Acceleration of Pulsars by Asymmetric Radiation. II. Theoretical Generalizations and Discussions. *Eugene Tadamaru.* **209**, 245, 90-E7 (1976)
- TALBOT, RAYMOND J., JR. Expected Rate of Transient Events from Stellar Deaths in Other Galaxies. *Raymond J. Talbot, Jr.* **205**, 535, 35-D2 (1976)
- TAMMANN, G. A. The Virgo Clusters. I. The Equality of Mean Redshifts of E and S Galaxies near the Cluster Center. *Allan Sandage and G. A. Tammann.* **207**, L1, 62-A2 (1976)
- Steps toward the Hubble Constant. VII. Distances to NGC 2403, M101, and the Virgo Cluster Using 21 Centimeter Line Widths Compared with Optical Methods: The Global Value of H₀. *Allan Sandage and G. A. Tammann.* **210**, 7, 103-A10 (1976)
- TANANBAUM, H. Uhuru Observations of the Galactic Plane in 1970, 1971, and 1972. *W. Forman, C. Jones, and H. Tananbaum.* **206**, L29, 47-C3 (1976)
- Uhuru Observations of a Transient X-Ray Source Associated with the Globular Cluster NGC 6440. *W. Forman, C. Jones, and H. Tananbaum.* **207**, L25, 62-C6 (1976)
- Survey of Intensity Variability of Strong Galactic X-Ray Sources from Uhuru. *W. Forman, C. Jones, and H. Tananbaum.* **208**, 849, 85-D5 (1976)
- Uhuru Observations of 4U 1608-52: The "Steady" X-Ray Source Associated with the X-Ray Burst Source Norma. *H. Tananbaum, Lola J. Chaisson, W. Forman, C. Jones, and T. A. Matilsky.* **209**, L125, 101-E13 (1976)
- Uhuru and Ariel V Observations of 3U 1630-47: A Recurrent Transient X-Ray Source. *C. Jones, W. Forman, H. Tananbaum, and M. J. L. Turner.* **210**, L9, 106-B8 (1976)
- TANDON, J. N. On the Magneto-rotating Polytrope. *M. K. Das and J. N. Tandon.* **209**, 233, 90-D7 (1976)
- TAPIA, S. Four-Point Optical Energy Distributions for Faint BL Lacertae Objects. *S. Tapia, E. R. Craine, and Keith Johnson.* **203**, 291, 5-A10 (1976)
- On the Nature of IRC +10420. *Eric R. Craine, William J. Schuster, S. Tapia, and Frederick J. Vrba.* **205**, 802, 39-E1 (1976)
- 3C 66 A: A BL Lacertae Object in a Distant, Rich Cluster of Galaxies. *H. R. Butcher, A. Oemler, Jr., S. Tapia, and M. Tarengi.* **209**, L11, 92-A10 (1976)
- TARBELL, T. D. The Triple-Alpha Rate, Screening Factors, and the Helium Flash: Erratum. *T. D. Tarbell and R. T. Rood.* **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 443, 56-E3)
- TARENGHI, M. The Cluster of Galaxies Abell 2255. *M. Tarengi and John S. Scott.* **207**, L9, 62-A10 (1976)
- 3C 66 A: A BL Lacertae Object in a Distant, Rich Cluster of Galaxies. *H. R. Butcher, A. Oemler, Jr., S. Tapia, and M. Tarengi.* **209**, L11, 92-A10 (1976)
- TARENGHI, MASSIMO. The Polarization of the Infrared Source CRL 2688 (The Egg Nebula). *Stephen J. Shawl and Massimo Tarengi.* **204**, L25, 17-B12 (1976)
- TARNSTROM, G. L. Synchrotron or Plasma Process Emission in Narrow-Band Type IV_{dm} Bursts? *A. O. Benz and G. L. Tarnstrom.* **204**, 597, 21-A5 (1976)
- TAYLOR, J. H. Further Observations of the Binary Pulsar PSR 1913+16. *J. H. Taylor, R. A. Hulse, L. A. Fowler, G. E. Gullahorn, and J. M. Rankin.* **206**, L53, 47-E1 (1976)
- TAYLOR, KEITH. High-Velocity Gas in the Cygnus Loop. *Robert P. Kirshner and Keith Taylor.* **208**, L83, 82-C7 (1976)
- TEEGARDEN, B. J. The Interplanetary Acceleration of Energetic Nucleons. *F. B. McDonald, B. J. Teegarden, J. H. Trainor, T. T. von Rosenvinge, and W. R. Webber.* **203**, L149, 11-G2 (1976)
- TELESCO, C. M. Far-Infrared Photometry of NGC 1068. *C. M. Telesco, D. A. Harper, and R. F. Loewenstein.* **203**, L53, 8-B8 (1976)
- One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. *M. W. Werner, I. Gatley, D. A. Harper, E. E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson.* **204**, 420, 19-A13 (1976)

- TERZIAN, YERVANT. Radio Emission from the X-Ray Source A02620-00. *Frazer N. Owen, Thomas J. Balonek, John Dickey, Yervant Terzian, and S. T. Gottesman*. **203**, L15, 4-D6 (1976)
- Radio Synthesis Observations of Planetary Nebulae. II. A Search For Sub-Arcsecond Structure. *Bruce Balick and Yervant Terzian*. **204**, 441, 19-C5 (1976)
- TESKE, R. G. Thermodynamic History of a Solar Active Region Observed in X-Rays. *R. G. Teske and E. B. Mayfield*. **210**, L153, 115-C9 (1976)
- TESTERMAN, L. Applications of Fourier Analysis to Broadening of Stellar Line Profiles. III. Solar Microturbulence and Macroturbulence from Iron Lines. *Myron A. Smith, L. Testerman, and J. C. Evans*. **207**, 308, 61-C6 (1976)
- TEUKOLSKY, SAUL A. On the Maximum Gravitational Redshift of White Dwarfs. *Stuart L. Shapiro and Saul A. Teukolsky*. **203**, 697, 10-D10 (1976)
- Arrival-Time Analysis for a Pulsar in a Binary System. *Roger Blandford and Saul A. Teukolsky*. **205**, 580, 35-G5 (1976)
- THADDEUS, PATRICK. Rotational Excitation of CO by Collisions with He, H, and H₂ under Conditions in Interstellar Clouds. *Sheldon Green and Patrick Thaddeus*. **205**, 766, 39-B5 (1976)
- THEYS, J. C. Ring Galaxies. I. *J. C. Theys and E. A. Spiegel*. **208**, 650, 83-B1 (1976)
- THIELHEIM, K. O. The Structure of the Galactic Disk and Its Implications for Gamma-Ray Astronomy. *B. Fuchs, R. Schlickeiser, and K. O. Thielheim*. **206**, 589, 50-F1 (1976)
- THOMAS, J. C. The Radio-flaring Triple System b Persei. *Graham Hill, G. C. L. Aikman, Anne P. Cowley, C. T. Bolton, and J. C. Thomas*. **208**, 152, 75-E12 (1976)
- THOMAS, JOHN H. Solar Magneto-atmospheric Waves. I. An Exact Solution for a Horizontal Magnetic Field. *Alan H. Nye and John H. Thomas*. **204**, 573, 20-F9 (1976)
- Solar Magneto-atmospheric Waves. II. A Model for Running Penumbra Waves. *Alan H. Nye and John H. Thomas*. **204**, 582, 20-G4 (1976)
- Observations of Penumbra Waves in the Photosphere. *Steve Musman, Alan H. Nye, and John H. Thomas*. **206**, L175, 56-G1 (1976)
- THOMAS, R. J. The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
- THOMPSON, D. J. Significance of Medium-Energy Gamma-Ray Astronomy in the Study of Cosmic Rays. *C. E. Fichtel, D. A. Kniffen, D. J. Thompson, G. F. Bignami, and C. Y. Cheung*. **208**, 211, 76-C2 (1976)
- A Search of the SAS-2 Data for Pulsed Gamma-Ray Emission from Radio Pulsars. *H. Ögelman, C. E. Fichtel, D. A. Kniffen, and D. J. Thompson*. **209**, 584, 95-F9 (1976)
- THOMPSON, J. Direct Photography of the Gum Nebula. *John C. Brandt, Robert G. Roosen, J. Thompson, and D. J. Ludden*. **208**, 109, 75-B6 (1976)
- THOMPSON, LAIRD A. The Angular Momentum Properties of Galaxies in Rich Clusters. *Laird A. Thompson*. **209**, 22, 88-B12 (1976)
- THOMPSON, RODGER I. A Lower Limit on the Surface ¹²C/¹³C Ratio in Alpha Orionis. *T. N. Gautier III, Rodger I. Thompson, Uwe Fink, and Harold P. Larson*. **205**, 841, 40-A10 (1976)
- 1.3 to 2.5 Micron Spectra of MWC 349 and LkHα 101. *Rodger I. Thompson and Michael A. Reed*. **205**, L159, 42-D6 (1976)
- Combined Ground and Aircraft Based 1-4 Micron Spectra of LkHα 101. *Rodger I. Thompson, Edwin F. Erickson, Fred C. Witteborn, and D. W. Strecker*. **210**, L31, 106-D1 (1976)
- THOMSEN, MICHELLE F. Galactic Cosmic-Ray Intensity 0.99 to 5.26 Astronomical Units from the Sun. *Michelle F. Thomsen and James A. Van Allen*. **206**, 599, 50-F11 (1976)
- THONNARD, NORBERT. Motions of the Stars and the Excited Gas in the Barred Spiral Galaxy NGC 3351. *Charles J. Peterson, Vera C. Rubin, W. Kent Ford, Jr., and Norbert Thonnard*. **208**, 662, 83-C3 (1976)
- THORNE, KIP S. Gravitational-Wave Bursts from the Nuclei of Distant Galaxies and Quasars: Proposal for Detection Using Doppler Tracking of Interplanetary Spacecraft. *Kip S. Thorne and Vladimir B. Braginsky*. **204**, L1, 17-A2 (1976)
- THRONSON, H. A. One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. *M. W. Werner, I. Gatley, D. A. Harper, E. E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson*. **204**, 420, 19-A13 (1976)
- THRONSON, HARLEY A., JR. The Infrared Emission of M17. *D. A. Harper, F. J. Low, G. H. Rieke, and Harley A. Thronson, Jr.*. **205**, 136, 29-D6 (1976)
- THUAN, TRINH X. On the Formation of Spiral and Elliptical Galaxies. *J. Richard Gott III and Trinh X. Thuan*. **204**, 649, 23-B8 (1976)
- Color Gradients in the Nuclear Region of M31. *Trinh X. Thuan and J. B. Oke*. **205**, 360, 33-E3 (1976)
- TIFT, W. G. Direct Observations of the Large-Scale Distribution of Galaxies. *W. G. Tift and S. A. Gregory*. **205**, 696, 38-C13 (1976)
- TIFT, WILLIAM G. Systematic Redshifts in the Outer Regions of the Coma Cluster. *Stephen A. Gregory and William G. Tift*. **205**, 716, 38-E7 (1976)
- Discrete States of Redshift and Galaxy Dynamics. I. Internal Motions in Single Galaxies. *William G. Tift*. **206**, 38, 43-C13 (1976)
- Gross Optical Properties of the Coma Cluster. *Stephen A. Gregory and William G. Tift*. **206**, 934, 55-F9 (1976)
- TIMOTHY, J. G. Extreme-Ultraviolet Transients Observed at the Solar Pole. *G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza*. **203**, 528, 7-F5 (1976)
- TINSLEY, BEATRICE M. Evolutionary Synthesis of the Stellar Population in Elliptical Galaxies. I. Ingredients, Broad-Band Colors, and Infrared Features. *Beatrice M. Tinsley and James E. Gunn*. **203**, 52, 1-D12 (1976)
- Effects of Main-Sequence Brightening on the Luminosity Evolution of Elliptical Galaxies. *Beatrice M. Tinsley*. **203**, 63, 1-E9 (1976)
- Composition Gradients Across Spiral Galaxies. II. The Stellar Mass Limit. *G. A. Shields and Beatrice M. Tinsley*. **203**, 66, 1-E12 (1976)
- Luminosity Functions and the Evolution of Low-Mass Population I Giants. *Beatrice M. Tinsley and James E. Gunn*. **206**, 525, 50-A1 (1976)
- Stellar Production as a Source of ³He in the Interstellar Medium. *Robert T. Rood, Gary Steigman, and Beatrice M. Tinsley*. **207**, L57, 62-E9 (1976)
- The Indeterminacy of the Age-Dependence of Metallicities of Nearby Disk Stars. *Robert D. McClure and Beatrice M. Tinsley*. **208**, 480, 80-B11 (1976)
- Chemical Evolution in the Solar Neighborhood. II. Statistical Constraints, Finite Stellar Lifetimes, and Inhomogeneities. *Beatrice M. Tinsley*. **208**, 797, 84-G9 (1976)
- Dynamical Friction: The Hubble Diagram as a Cosmological Test. *James E. Gunn and Beatrice M. Tinsley*. **210**, 1, 103-A4 (1976)
- Surface Brightness Parameters as Tests of Galactic Evolution. *Beatrice M. Tinsley*. **210**, L49, 111-A2 (1976)
- TIPLER, FRANK J. Singularities in Universes with Negative Cosmological Constant. *Frank J. Tipler*. **209**, 12, 88-B2 (1976)
- TOHLINE, J. E. Variation of the Spectrum of the Seyfert Galaxy NGC 7603. *J. E. Tohline and D. E. Osterbrock*. **210**, L117, 115-A2 (1976)
- TOKUNAGA, A. Ethane and Acetylene Abundances in the Jovian Atmosphere. *A. Tokunaga, R. F. Knacke, and T. Owen*. **209**, 294, 91-B2 (1976)
- TOMKIN, J. Isotopic Abundances of Magnesium in Arcturus. *J. Tomkin and D. L. Lambert*. **208**, 436, 79-F6 (1976)
- The ¹²C/¹³C Ratio in Stellar Atmospheres. VII. 38 Giants and Supergiants. *J. Tomkin, R. E. Luck, and D. L. Lambert*. **210**, 694, 112-G1 (1976)

- TOOMRE, ALAR. On the Interpretation of Ring Galaxies: The Binary Ring System II Hz 4. *Roger Lynds and Alar Toomre*. **209**, 382, 93-E12 (1976)
- TOOMRE, JURI. Stellar Convection Theory. I. The Anelastic Modal Equations. *Jean Latour, Edward A. Spiegel, Juri Toomre, and Jean-Paul Zahn*. **207**, 233, 60-E1 (1976)
- Stellar Convection Theory. II. Single-Mode Study of the Second Convection Zone in an A-Type Star. *Juri Toomre, Jean-Paul Zahn, Jean Latour, and Edward A. Spiegel*. **207**, 545, 65-C1 (1976)
- TOOR, A. An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. *F. Seward, G. Burginyon, R. Grader, R. Hill, T. Palmieri, P. Stoering, and A. Toor*. **205**, 238, 30-E8 (1976)
- Evidence for "Thermal" X-Rays from the Crab Nebula. *A. Toor, T. M. Palmieri, and F. D. Seward*. **207**, 96, 59-A9 (1976)
- TORRES-PEIMBERT, SILVIA. Chemical Composition of H II Regions in the Small Magellanic Cloud and the Pregelactic Helium Abundance. *Manuel Peimbert and Silvia Torres-Peimbert*. **203**, 581, 9-C1 (1976)
- TOUSEY, R. High-Temperature Flare Lines in the Solar Spectrum 171-630 Å. *G. D. Sandlin, G. E. Brueckner, V. E. Scherrer, and R. Tousey*. **205**, L47, 32-D4 (1976)
- TOVMASSIAN, H. The Radio Spectra of Markarian Galaxies. *Gabriel Kojoian, Richard A. Sramek, Dale F. Dickinson, H. Tovmassian, and C. R. Purton*. **203**, 323, 5-D1 (1976)
- TOVMASSIAN, H. M. The Radio Brightness Distribution of Eight Markarian Galaxies. *R. A. Sramek and H. M. Tovmassian*. **207**, 725, 68-D5 (1976)
- TOWNES, C. H. Spectral and Spatial Resolution of the 12.8 Micron Ne II Emission from the Galactic Center. *E. R. Wollman, T. R. Geballe, J. H. Lacy, C. H. Townes, and D. M. Rank*. **205**, L5, 32-A7 (1976)
- Observations of the $^{12}\text{C}/^{13}\text{C}$ Ratio in Four Galactic Sources of Formaldehyde. *D. N. Matsakis, M. F. Chui, P. F. Goldsmith, and C. H. Townes*. **206**, L63, 47-E11 (1976)
- Collisional Excitation of A Doublet Transitions in CH and OH. *M. Bertojo, A. C. Cheung, and C. H. Townes*. **208**, 914, 86-B6 (1976)
- Nonthermal 10 Micron CO₂ Emission Lines in the Atmospheres of Mars and Venus. *M. A. Johnson, A. L. Betz, R. A. McLaren, E. C. Sutton, and C. H. Townes*. **208**, L145, 87-B8 (1976)
- TRAFTON, L. The Aerosol Distribution in Uranus' Atmosphere: Interpretation of the Hydrogen Spectrum. *L. Trafton*. **207**, 1007, 71-D3 (1976)
- The Effective Temperature of Uranus. *G. G. Fazio, W. A. Traub, E. L. Wright, F. J. Low, and L. Trafton*. **209**, 633, 96-C7 (1976)
- TRAINOR, J. H. The Interplanetary Acceleration of Energetic Nucleons. *F. B. McDonald, B. J. Teegarden, J. H. Trainor, T. T. von Rosenvinge, and W. R. Webber*. **203**, L149, 11-G2 (1976)
- TRAUB, W. A. Detection of O₂ Dayglow Emission from Mars and the Martian Ozone Abundance. *J. F. Noxon, W. A. Traub, N. P. Carleton, and P. Connes*. **207**, 1025, 71-E13 (1976)
- The Effective Temperature of Uranus. *G. G. Fazio, W. A. Traub, E. L. Wright, F. J. Low, and L. Trafton*. **209**, 633, 96-C7 (1976)
- TREFFERS, R. R. Infrared Spectra of the Satellites of Saturn: Identification of Water Ice on Iapetus, Rhea, Dione, and Tethys. *Uwe Fink, Harold P. Larson, T. N. Gautier III, and R. R. Treffers*. **207**, L63, 62-F1 (1976)
- TREFFERS, RICHARD. The Infrared Emission of Upsilon Sagittarii, 89 Herculis, and R Coronae Borealis. *Richard Treffers, Neville J. Woolf, Uwe Fink, and Harold P. Larson*. **207**, 680, 66-E10 (1976)
- TREFFERS, RICHARD R. Detection of Molecular Hydrogen Quadrupole Emission in the Orion Nebula. *T. N. Gautier III, Uwe Fink, Richard R. Treffers, and Harold P. Larson*. **207**, L129, 67-E3 (1976)
- The Spectrum of the Planetary Nebulae NGC 7027 from 0.9 to 2.7 Microns. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III*. **209**, 793, 99-D3 (1976)
- The 1.4-2.7 Micron Spectrum of the Point Source at the Galactic Center. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III*. **209**, L115, 101-E1 (1976)
- TREMAINE, SCOTT D. The Effect of Dynamical Friction on the Orbits of the Magellanic Clouds. *Scott D. Tremaine*. **203**, 72, 1-F4 (1976)
- The Formation of the Nuclei of Galaxies. II. The Local Group. *Scott D. Tremaine*. **203**, 345, 5-E9 (1976)
- TREVES, ALDO. The Effect of Radiation Pressure on Accretion Disks around Black Holes. *Laura Maraschi, Cesare Reina, and Aldo Treves*. **206**, 295, 46-B3 (1976)
- TRÜMPER, J. The 4.8 Hour Variation of Cygnus X-3 at High and J. Trümper. **203**, L67, 8-C6 (1976)
- TRURAN, J. W. A Single-Star Interpretation of Nova Cygni 1975. *S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. M. Van Horn*. **208**, L23, 77-B10 (1976)
- TRURAN, JAMES W. CNO Abundances and Hydrodynamic Models of the Nova Outburst. IV. Comparison with Observations. *Warren M. Sparks, Sumner Starrfield, and James W. Truran*. **208**, 819, 85-B3 (1976)
- TUBBS, DAVID L. Neutrino Opacities at High Temperatures and Densities: Erratum. *David L. Tubbs and David N. Schramm*. **205**, 308, 31-C10 (1976) (Orig. paper in **201**, 467, 82-C11)
- Neutrino Pair Bremsstrahlung Including Neutral Current Effects. *Duane A. Dicus, Edward W. Kolb, David N. Schramm, and David L. Tubbs*. **210**, 481, 109-B3 (1976)
- TUCKER, K. D. The Relation between Carbon Monoxide Emission and Visual Extinction in Cloud L134. *K. D. Tucker, R. L. Dickman, P. J. Encrenaz, and M. L. Kutner*. **210**, 679, 112-E13 (1976)
- TUCKER, KENNETH D. A Dense Molecular Cloud in the OMC-1/OMC-2 Region. *Marc L. Kutner, Neal J. Evans II, and Kenneth D. Tucker*. **209**, 452, 94-D1 (1976)
- TULLOCH, M. K. The Ultraviolet Spectrum of Beta Lyrae. II. *M. Hack, J. B. Hutchings, Y. Kondo, G. E. McCluskey, and M. K. Tulloch*. **206**, 777, 54-A11 (1976)
- TUPPER, B. O. J. A Class of Bianchi Type VI Cosmological Model with Electromagnetic Field. *K. A. Dunn and B. O. J. Tupper*. **204**, 322, 18-A11 (1976)
- TURK, J. S. Pulsar Extinction. *P. A. Sturrock, K. Baker, and J. S. Turk*. **206**, 273, 45-G9 (1976)
- TURNER, B. E. Observation of the 616-515 Transitions of Acetaldehyde in Sagittarius B2. *W. Gilmore, M. Morris, D. R. Johnson, F. J. Lovas, B. Zuckerman, B. E. Turner, and P. Palmer*. **204**, 43, 13-D10 (1976)
- Cyanoacetylene in Dense Interstellar Clouds. *M. Morris, B. E. Turner, Patrick Palmer, and B. Zuckerman*. **205**, 82, 28-G9 (1976)
- CRL 2688: A Post-Carbon-Star Object and Probable Planetary Nebula Progenitor. *B. Zuckerman, Daya P. Gilra, B. E. Turner, M. Morris, and Patrick Palmer*. **205**, L15, 32-B2 (1976)
- TURNER, DAVID G. The Value of R in Monoceros. *David G. Turner*. **210**, 65, 103-F13 (1976)
- TURNER, EDWIN L. Binary Galaxies. I. A Well-defined Statistical Sample. *Edwin L. Turner*. **208**, 20, 74-B11 (1976)
- Binary Galaxies. II. Dynamics and Mass-to-Light Ratios. *Edwin L. Turner*. **208**, 304, 78-C4 (1976)
- The Mean Luminosity and Mass Densities in the Universe. *J. Richard Gott III and Edwin L. Turner*. **209**, 1, 88-A4 (1976)
- Groups of Galaxies. II. The Luminosity Function. *Edwin L. Turner and J. Richard Gott III*. **209**, 6, 88-A9 (1976)
- Groups of Galaxies. I. A Catalog. *Edwin L. Turner and Richard Gott III*. **32**, 409, 29-E1 (1976) (Abstr. in **209**, 650, 96-D11)

- TURNER, K. C. Limits on the Magnetic Field Strength in H I Clouds surrounding the Supernova Remnants HB 21 and W44. *K. C. Turner, L. K. DeNoyer, and J. W. Erkes*. **207**, 59, 58-E9 (1976)
- TURNER, M. J. L. *Uhuru* and *Ariel V* Observations of 3U 1630-47: A Recurrent Transient X-Ray Source. *C. Jones, W. Forman, H. Tananbaum, and M. J. L. Turner*. **210**, L9, 106-B8 (1976)
- TURNROSE, BARRY E. The Stellar Content of the Nuclear Regions of Sc Galaxies. *Barry E. Turnrose*. **210**, 33, 103-C12 (1976)
- TWORKOWSKI, A. S. Dielectronic Recombination to Form Helium-like Ions. *Alan Burgess and A. S. Tworkowski*. **205**, L105, 37-D4 (1976)
- UGARTE P., PATRICIO. Instrumental Color-Magnitude Diagrams for 24 Large Magellanic Cloud Star Clusters. *James E. Hesser, F. D. A. Hartwick, and Patricio Ugarte P*. **32**, 283, 26-F1 (1976) (Abstr. in **208**, 272, 76-G10)
- ULICH, B. L. Radio Detection of the Interstellar Formyl Radical. *L. E. Snyder, J. M. Hollis, and B. L. Ulich*. **208**, L91, 82-D1 (1976)
- Detection, Identification, and Observations of Interstellar H^{13}CO^+ . *L. E. Snyder, J. M. Hollis, F. J. Lovas, and B. L. Ulich*. **209**, 67, 88-F2 (1976)
- Absolute Calibration of Millimeter-Wavelength Spectral Lines. *B. L. Ulich and R. W. Haas*. **30**, 247, 5-C1 (1976) (Abstr. in **202**, 312, 16-D9)
- ULMER, M. P. Studies of the Average Pulse Shape of Centaurus X-3 in the 2-20 KeV Range. *M. P. Ulmer*. **204**, 548, 20-D12 (1976)
- Search for X-Ray Emission from BL Lacertae Objects and Nearby Seyfert Galaxies. *M. P. Ulmer and S. S. Murray*. **207**, 364, 63-B11 (1976)
- Search for X-Ray Emission from Globular Clusters Using *Uhuru* Data. *M. P. Ulmer, S. S. Murray, H. Gursky, and J. N. Bahcall*. **208**, 47, 74-D11 (1976)
- Observations of High-Latitude X-Ray Sources with the *Uhuru* Satellite. *S. S. Murray and M. P. Ulmer*. **210**, 230, 105-E1 (1976)
- ULRICH, MARIE-HELENE. Redshifts of Forty-Three Radio Sources. *Marie-Helene Ulrich*. **206**, 364, 48-C2 (1976)
- Optical Spectrum and Redshifts of a Quasar of Extremely High Intrinsic Luminosity: B2 1225+31. *Marie-Helene Ulrich*. **207**, L73, 67-A2 (1976)
- ULRICH, ROGER K. The Accreting Component of Mass-Exchange Binaries. *Roger K. Ulrich and Harry L. Burger*. **206**, 509, 49-F13 (1976)
- A Nonlocal Mixing-Length Theory of Convection for Use in Numerical Calculations. *Roger K. Ulrich*. **207**, 564, 65-D6 (1976)
- An Infall Model for the T Tauri Phenomenon. *Roger K. Ulrich*. **210**, 377, 108-A6 (1976)
- ULRYCH, TAD J. Shot Noise in 3C 273. *G. G. Fahlman and Tad J. Urych*. **209**, 663, 98-B1 (1976)
- UNDERHILL, ANNE B. Luminosity Effects in the Ultraviolet Spectrum of B5-B6 Stars. *Anne B. Underhill and Ernest Silversmith*. **206**, L56, 44-E11 (1976)
- UNNO, WASABURO. On Magnetic Buoyancy in the Convection Zone. *Wasaburo Unno and Elizabeth Ribes*. **208**, 222, 76-C13 (1976)
- VALTONEN, MAURI. Radio Trails in the Slingshot Theory. *Mauri Valtonen*. **209**, 35, 88-C12 (1976)
- VAN ALLEN, JAMES A. Galactic Cosmic-Ray Intensity 0.99 to 5.26 Astronomical Units from the Sun. *Michelle F. Thomsen and James A. Van Allen*. **206**, 599, 50-F11 (1976)
- VAN BLERKOM, DAVID. The Geometry of VY Canis Majoris Derived from SiO Maser Lines. *David Van Blerkom and Lawrence Auer*. **204**, 775, 24-D13 (1976)
- Neutral Helium Emission in Wolf-Rayet Envelopes. *William R. Oegerle and David Van Blerkom*. **206**, L50, 44-E5 (1976)
- A Model for P Cygni Based on the He I Spectrum. *William R. Oegerle and David Van Blerkom*. **208**, 453, 79-G8 (1976)
- VANDENBERG, N. R. Meter-Wavelength VLBI. III. Pulsars. *N. R. Vandenberg, T. A. Clark, W. C. Erickson, G. M. Resch, and J. J. Broderick*. **207**, 937, 70-E12 (1976)
- Meter-Wavelength VLBI. IV. Temporal and Spatial Scattering of the Crab Nebula Pulsar's Radiation. *N. R. Vandenberg*. **209**, 578, 95-F3 (1976)
- VAN DEN BERGH, SIDNEY. The Semistellar Nucleus of M33. *Sidney van den Bergh*. **203**, 764, 11-C2 (1976)
- Statistics of Extragalactic Supernovae. *José Maza and Sidney van den Bergh*. **204**, 519, 20-B4 (1976)
- A New Classification System for Galaxies. *Sidney van den Bergh*. **206**, 883, 55-B9 (1976)
- The Post-Eruptive Galaxy NGC 5128 = Centaurus A. *Sidney van den Bergh*. **208**, 673, 83-D6 (1976)
- The 10.8 Day Cepheid TW Normae and the Cluster Lynga Number 6. *Sidney van den Bergh and Gretchen L. H. Harris*. **208**, 767, 84-D12 (1976)
- The Cepheid SV Crucis and the Cluster Ruprecht 97. *Sidney van den Bergh, Elizabeth Herbst, Gretchen L. H. Harris, and William Herbst*. **208**, 770, 84-E7 (1976)
- The Optical Remnant of the Lupus Supernova of 1006. *Sidney van den Bergh*. **208**, L17, 77-B4 (1976)
- The Cepheid CS Velorum and the Cluster Ruprecht 79. *Gretchen L. H. Harris and Sidney van den Bergh*. **209**, 130, 89-C12 (1976)
- The Optical Structure of Cygnus A. *Sidney van den Bergh*. **210**, L63, 111-B1 (1976)
- Optical Studies of Cassiopeia A. V. A Definitive Study of Proper Motion. *Karl Kamper and Sydney van den Bergh*. **32**, 351, 38-D1 (1976) (Abstr. in **208**, 955, 86-E4)
- VANHOOSIER, M. E. Absolute Solar Ultraviolet Intensities and Their Variations with Solar Activity. I. The Wavelength Region 1750-2100 Å. *G. E. Brueckner, J. -D. F. Bartoe, O. Kjeldseth Moe, and M. E. VanHoosier*. **209**, 935, 100-G13 (1976)
- The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175-1940 Å. *G. A. Doschek, U. Feldman, M. E. VanHoosier, and J. -D. F. Bartoe*. **31**, 417, 18-E1 (1976) (Abstr. in **206**, 964, 56-A13)
- The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175-1940 Å. *U. Feldman, G. A. Doschek, M. E. VanHoosier, and J. D. Purcell*. **31**, 445, 18-G1 (1976) (abstr. in **206**, 965, 56-A14)
- VAN HORN, H. M. On the White Dwarf HZ 43 as an Extreme-Ultraviolet Source. *Richard H. Durisen, M. P. Savedoff, and H. M. Van Horn*. **206**, L149, 56-E4 (1976)
- The Far-Ultraviolet Spectrum of Sirius B from Copernicus. *Malcolm P. Savedoff, H. M. Van Horn, F. Wesemael, L. H. Auer, T. P. Snow, and D. G. York*. **207**, L45, 62-D12 (1976)
- A Single-Star Interpretation of Nova Cygni 1975. *S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. M. Van Horn*. **208**, L23, 77-B10 (1976)
- Convective White-Dwarf Envelope Model Grids for H-, He-, and C-rich Compositions. *G. Fontaine and H. M. Van Horn*. **31**, 467, 19-B1 (1976) (Abstr. in **206**, 965, 56-A14)
- VASYLIUNAS, VYTENIS M. Mathematical Theory of Isothermal Blast Waves and the Question of Their Applicability to Supernova Remnants. *Ian Lerche and Vytenis M. Vasyliunas*. **210**, 85, 104-A5 (1976)
- VAUCLAIR, GÉRARD. Diffusion in Main-Sequence Stars: Radiation Forces, Time Scales, Anomalies. *Georges Michaud, Yves Charland, Sylvie Vauclair, and Gérard Vauclair*. **210**, 447, 108-F10 (1976)
- VAUCLAIR, SYLVIE. Diffusion in Main-Sequence Stars: Radiation Forces, Time Scales, Anomalies. *Georges Michaud, Yves Charland, Sylvie Vauclair, and Gérard Vauclair*. **210**, 447, 108-F10 (1976)
- VAUGHAN, ARTHUR H. Observations of the Transverse Zeeman Effect in the Magnetic Star Beta Coronae Borealis:

- Evidence for the Oblique Rotator Model. *Ermanno F. Borra and Arthur H. Vaughan*. **210**, L145, 115-C1 (1976)
- VAUGHAN, ARTHUR H., JR. Isotopic Abundances of Hg in Mercury Stars Inferred from Hg II $\lambda 3984$. *R. E. White, Arthur H. Vaughan, Jr., G. W. Preston, and J. P. Swings*. **204**, 131, 14-D13 (1976)
- VERNAZZA, J. E. Extreme-Ultraviolet Transients Observed at the Solar Pole. *G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza*. **203**, 528, 7-F5 (1976)
- VERNAZZA, JORGE E. Excitation and Ionization of Helium in the Solar Atmosphere. *Eugene H. Avrett, Jorge E. Vernazza, and Jeffrey L. Linsky*. **207**, L199, 72-E7 (1976)
- Structure of the Solar Chromosphere. II. The Underlying Photosphere and Temperature-Minimum Region. *Jorge E. Vernazza, Eugene H. Avrett, and Rudolf Loeser*. **30**, 1, 1-A2 (1976) (Abstr. in **202**, 844, 99-G14)
- VEVERKA, J. The Occultation of B Scorpii by Jupiter. VII. The Angular Diameters of B Scorpii A₁ and A₂. *J. L. Elliot, K. Rages, and J. Veverka*. **207**, 994, 71-C1 (1976)
- VICTOR, G. A. Oscillator Strengths in the Mg Isoelectronic Sequence. *G. A. Victor, R. F. Stewart, and C. Laughlin*. **31**, 237, 15-D1 (1976) (Abstr. in **206**, 343, 46-E11)
- VIDAL, N. V. The Two Optical Candidates of LMC X-2. *M. Pakull and N. V. Vidal*. **207**, 329, 61-E1 (1976)
- VIDOR, S. B. Isotopic and Elemental Composition of the Anomalous Low-Energy Cosmic-Ray Fluxes. *R. A. Mewaldt, E. C. Stone, S. B. Vidor, and R. E. Vogt*. **205**, 931, 41-A9 (1976)
- VIGROUX, LAURENT. Implications of the Presence of Deuterium in the Galactic Center. *Jean Audouze, James Lequeux, Hubert Reeves, and Laurent Vigroux*. **208**, L51, 82-A6 (1976)
- VILA, SAMUEL C. Changing Gravitational Constant and White Dwarfs. *Samuel C. Vila*. **206**, 213, 45-B13 (1976)
- The Pulsational Properties of High-Luminosity Degenerate Stars with Hydrogen Burning near the Surface. *Samuel C. Vila and Edward M. Sion*. **207**, 820, 69-D4 (1976)
- The Pulsational Properties of High-Luminosity Degenerate Stars with Helium Burning near the Surface. *Edward M. Sion and Samuel C. Vila*. **209**, 850, 100-A5 (1976)
- VINER, M. R. Recombination-Line Observations of W3 (OH). I. A Model for OH and H₂O Emission. *V. A. Hughes and M. R. Viner*. **204**, 55, 13-E9 (1976)
- VIOTTI, R. Forbidden and Permitted Emission Lines of Singly Ionized Iron as a Diagnostic in the Investigation of Stellar Emission-Line Spectra. *R. Viotti*. **204**, 293, 16-C4 (1976)
- VISVANATHAN, N. The Age and Chemical Composition of the LMC Cluster NGC 2209. *S. C. B. Gascoigne, John Norris, M. S. Bessell, A. R. Hyland, and N. Visvanathan*. **209**, L25, 92-B11 (1976)
- VITZ, R. C. Spectroscopic Survey of the Far Ultraviolet (1160–1700 Å) Emissions of Capella. *R. C. Vitz, H. Weiser, H. W. Moos, A. Weinstein, and E. S. Warden*. **205**, L35, 32-C6 (1976)
- VOGT, R. E. Isotopic and Elemental Composition of the Anomalous Low-Energy Cosmic-Ray Fluxes. *R. A. Mewaldt, E. C. Stone, S. B. Vidor, and R. E. Vogt*. **205**, 931, 41-A9 (1976)
- The Isotopic Composition of Hydrogen and Helium in Low-Energy Cosmic Rays. *R. A. Mewaldt, E. C. Stone, and R. E. Vogt*. **206**, 616, 51-A1 (1976)
- VOLLMER, O. Anomaly in the Quiet-Time Helium Spectrum at 1 MeV per Nucleon. *G. Gloeckler, D. Hovestadt, B. Klecker, O. Vollmer, and C. Y. Fan*. **204**, 920, 26-A6 (1976)
- VON HOERNER, SABASTIAN. The Evolution of Massive Collapsing Gas Clouds. *Sabastian von Hoerner and William C. Saslaw*. **206**, 917, 55-E6 (1976)
- VON ROSENINGE, T. T. The Interplanetary Acceleration of Energetic Nucleons. *F. B. McDonald, B. J. Teegarden, J. H. Trainor, T. T. von Roseninge, and W. R. Webber*. **203**, L149, 11-G2 (1976)
- VORPAHL, J. A. The Triggering and Subsequent Development of a Solar Flare. *J. A. Vorpahl*. **205**, 868, 40-C11 (1976)
- VRBA, F. J. Color and Metallicity Gradients in E and S0 Galaxies. *S. E. Strom, K. M. Strom, J. W. Goad, F. J. Vrba, and W. Rice*. **204**, 684, 23-E3 (1976)
- An Observational Study of the AFCRL Infrared Sky Survey. I. Limited Ground-based Survey and Results from Preliminary Catalog. *F. J. Low, R. F. Kurtz, F. J. Vrba, and G. H. Rieke*. **206**, L153, 56-E8 (1976)
- VRBA, FREDERICK J. On the Nature of IRC +10420. *Eric R. Craine, William J. Schuster, S. Tapia, and Frederick J. Vrba*. **205**, 802, 39-E1 (1976)
- Polarization from a Dust Ring surrounding the Peculiar Be Star HD 45677. *George V. Coyne S.J. and Frederick J. Vrba*. **207**, 790, 69-B1 (1976)
- WAGNER, WILLIAM J. Coronal Holes Observed by OSO-7 and Interplanetary Magnetic Sector Structure. *William J. Wagner*. **206**, 583, 50-E5 (1976)
- WAGONER, ROBERT V. Variational Analysis of Rotating Neutron Stars. *Marek A. Abramowicz and Robert V. Wagoner*. **204**, 896, 25-F9 (1976)
- Post-Newtonian Gravitational Radiation from Orbiting Point Masses. *Robert V. Wagoner and Clifford M. Will*. **210**, 764, 113-E3 (1976)
- WALBORN, NOLAN R. The Complex Outer Shell of Eta Carinae. *Nolan R. Walborn*. **204**, L17, 17-B2 (1976)
- The OBN and OBC Stars. *Nolan R. Walborn*. **205**, 419, 34-B8 (1976)
- On the Nature of Sigma Orionis E. *Nolan R. Walborn and James E. Hesser*. **205**, L87, 37-C2 (1976)
- Spectroscopic Studies of O-Type Binaries. II. HD 93205, 03 V, in the Carina Nebula. *Peter S. Conti and Nolan R. Walborn*. **207**, 502, 64-F10 (1976)
- WALKER, A. B. C., JR. The Relative Abundance of Neon and Magnesium in the Solar Corona. *H. R. Rugge and A. B. C. Walker, Jr.*. **203**, L139, 11-F6 (1976)
- WALKER, G. A. H. Spectroscopic Observations of Seyfert Galaxy Nuclei. *J. W. Glaspey, G. A. H. Walker, and Alan Stockton*. **210**, 27, 103-C6 (1976)
- WALKER, R. C. 6 Centimeter Observations of Radio Galaxies over a 228 Kilometer Baseline. *R. C. Walker, K. Y. Lo, B. F. Burke, K. J. Johnston, and J. M. Moran*. **208**, 296, 78-B10 (1976)
- WALKER, R. M. Heavily Irradiated Grains and Neon Isotope Anomalies in Carbonaceous Chondrites. *J. Audouze, J. P. Bibring, J. C. Dran, M. Maurette, and R. M. Walker*. **206**, L185, 56-G10 (1976)
- WALLACE, L. On Jovian Temperature Profiles Obtained by Inverting Thermal Spectra. *L. Wallace and Gerald R. Smith*. **203**, 760, 11-B12 (1976)
- The 800–1200 Inverse Centimeter Absorption Spectrum of Jupiter. *Stephen T. Ridgway, L. Wallace, and Gerald R. Smith*. **207**, 1002, 71-C11 (1976)
- WALLERSTEIN, GEORGE. High-Velocity Gas in Supernova Remnants. III. The Monoceros Loop. *George Wallerstein and Theodor S. Jacobsen*. **207**, 53, 58-E3 (1976)
- Interaction of the Vela Supernova Remnant with the Cloudy Interstellar Medium. *Edward B. Jenkins, Joseph Silk, and George Wallerstein*. **209**, L87, 97-A4 (1976)
- Ultraviolet Absorption Lines Associated with the Vela Supernova Remnant. *Edward B. Jenkins, Joseph Silk, and George Wallerstein*. **32**, 681, 43-C1 (1976) (Abstr. in **210**, 621, 110-E14)
- WALLIS, MAX K. Sun and Comets as Sources in an External Flow. *Max K. Wallis and Murray Dryer*. **205**, 895, 40-F1 (1976)
- WALRAVEN, G. D. Detection of Nuclear Gamma Rays from Centaurus A. *R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes*. **210**, 631, 112-B4 (1976)
- WAMPLER, E. J. The BL Lacertae Object AP Librae in 1975. *B.*

- A. Peterson, A. W. Rodgers, E. J. Wampler, and M. J. Disney. **207**, L17, 62-B9 (1976)
- WANNIER, P. G. Isotope Abundances in Interstellar Molecular Clouds. P. G. Wannier, A. A. Penzias, R. A. Linke, and R. W. Wilson. **204**, 26, 13-C6 (1976)
- Isotopic Abundances in Interstellar Carbon Monosulfide. R. W. Wilson, A. A. Penzias, P. G. Wannier, and R. A. Linke. **204**, L135, 27-C1 (1976)
- The Abundance Ratio $^{17}\text{O}/^{18}\text{O}$ in Dense Interstellar Clouds. P. G. Wannier, R. Lucas, R. A. Linke, P. J. Encrenaz, A. A. Penzias, and R. W. Wilson. **205**, L169, 42-E1 (1976)
- WARBURTON, RICHARD J. Search for Evidence of a Preferred Reference Frame. Richard J. Warburton and John M. Goodkind. **208**, 881, 85-F10 (1976)
- WARD, DENNIS B. Far-Infrared Spectral Observations of M42 and M17. Dennis B. Ward, Brian Dennison, George E. Gull, and Martin Harwit. **205**, L75, 37-B6 (1976)
- WARD, RICHARD A. s-Process Studies: Branching and the Time Scale. Richard A. Ward, Michael J. Newman, and Donald D. Clayton. **31**, 33, 11-E1 (1976) (Abstr. in **205**, 655, 36-E10)
- WARDEN, E. S. Spectroscopic Survey of the Far Ultraviolet (1160–1700 Å) Emissions of Capella. R. C. Vitz, H. Weiser, H. W. Moos, A. Weinstein, and E. S. Warden. **205**, L35, 32-C6 (1976)
- WARGO, G. F. OSO-7 Observations of High Galactic Latitude X-Ray Sources. T. H. Markert, C. R. Canizares, G. W. Clark, F. K. Li, P. L. Northridge, G. F. Sprott, and G. F. Wargo. **206**, 265, 45-F13 (1976)
- WARNER, JOHN W. Radio and Optical Observations of the Radio Source OX 029. Eric R. Craine and John W. Warner. **206**, 359, 48-B10 (1976)
- WASSERMAN, I. On the Origin of Continuum Polarization in White Dwarfs. W. H. Ingham, K. Brecher, and I. Wasserman. **207**, 518, 65-A1 (1976)
- WATSON, W. D. Calculation of the Cross Section for C IV–H Charge Exchange: Significance for Interstellar X-Rays/Cosmic-Ray Particles. R. J. Blint, W. D. Watson, and R. B. Christensen. **205**, 634, 36-D2 (1976)
- WATSON, WILLIAM D. Detection and Significance of the Interstellar OH Line $\lambda 3078$. Richard M. Crutcher and William D. Watson. **203**, L123, 11-E6 (1976)
- Multiple Ionization by Low-Energy Cosmic Rays and the Abundance of Highly Ionized Interstellar Atoms. William D. Watson. **204**, 47, 13-E1 (1976)
- Measurement and Significance of the Reaction $^{13}\text{C}^+ + ^{12}\text{CO} \rightleftharpoons ^{12}\text{C}^+ + ^{13}\text{CO}$ for Alteration of the $^{13}\text{C}/^{12}\text{C}$ Ratio in Interstellar Molecules. William D. Watson, Vincent G. Anicich, and Wesley T. Huntress, Jr. **205**, L165, 42-D11 (1976)
- Calculations of the Lower Electronic States of CH_3^+ : A Postulated Intermediate in Interstellar Reactions. R. J. Blint, R. F. Marshall, and William D. Watson. **206**, 627, 51-A13 (1976)
- Production of Galactic X-Rays Following Charge-Exchange by Cosmic-Ray Nuclei. William D. Watson. **206**, 842, 54-F7 (1976)
- Upper Limit and Significance of the NH Molecule in Diffuse Interstellar Clouds. Richard M. Crutcher and William D. Watson. **209**, 778, 99-C1 (1976)
- WEAVER, ROBERT. A New Luminosity Limit for Spherical Accretion onto Compact X-Ray Sources. Jeremiah P. Ostriker, Richard McCray, Robert Weaver, and A. Yahil. **208**, L61, 82-B1 (1976)
- WEAVER, THOMAS A. The Structure of Supernova Shock Waves. Thomas A. Weaver. **32**, 233, 26-A1 (1976) (Abstr. in **208**, 956, 86-E5)
- WEBBER, J. C. IRC +10 420: A Hot Supergiant Maser. P. T. Giguere, N. J. Woolf, and J. C. Webber. **207**, L195, 72-E3 (1976)
- Radio Observations of OH in Comet West 1975n. L. E. Snyder, J. C. Webber, R. M. Crutcher, and G. W. Swenson, Jr. **209**, L49, 92-D6 (1976)
- WEBBER, W. R. The Interplanetary Acceleration of Energetic Nucleons. F. B. McDonald, B. J. Teegarden, J. H. Trainor, T. T. von Rosenvinge, and W. R. Webber. **203**, L149, 11-G2 (1976)
- WEBBINK, RONALD F. The Evolution of Low-Mass Close Binary Systems. I. The Evolutionary Fate of Contact Binaries. Ronald F. Webbink. **209**, 829, 99-F12 (1976)
- The Evolution of Low-Mass Close Binary Systems. II. $1.50 M_{\odot} + 0.75 M_{\odot}$: Evolution into Contact. Ronald F. Webbink. **32**, 583, 33-A2 (1976) (Abstr. in **210**, 623, 110-F2)
- WEBER, H. W. On the Primordial Abundance of Argon-40. F. Beegemann, H. W. Weber, and H. Hintenberger. **203**, L155, 11-G9 (1976)
- WEBER, STEPHEN V. Oscillation and Collapse of Interstellar Clouds. Stephen V. Weber. **208**, 113, 75-C1 (1976)
- WEBSTER, W. J., JR. An Unusually Strong Radio Outburst in Algol: VLBI Observations. T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr. **206**, L107, 52-C12 (1976)
- WEEDMAN, DANIEL. The Hubble Diagram for Nuclear Magnitudes. Daniel Weedman. **203**, 6, 1-A9 (1976)
- WEEDMAN, DANIEL W. The Origin of Ultraviolet and Infrared Continuum Radiation from Seyfert Galaxies. Wayne A. Stein and Daniel W. Weedman. **205**, 44, 28-D8 (1976)
- Globular Clusters in the Hydra I Cluster of Galaxies. Malcolm G. Smith and Daniel W. Weedman. **205**, 709, 38-E2 (1976)
- Luminosities of Seyfert Galaxies and QSOs. Daniel W. Weedman. **208**, 30, 74-C7 (1976)
- WEEKES, T. C. Evidence for a Variable Flux of $>10^{11}$ eV Gamma-Rays from NP 0532. J. E. Grindlay, H. F. Helmken, and T. C. Weekes. **209**, 592, 95-G3 (1976)
- WEHINGER, P. A. Molecular Ions in Comet Tails. S. Wyckoff and P. A. Wehinger. **204**, 604, 21-A12 (1976)
- On the Ionization and Excitation of H_2O^+ in Comet Kohoutek (1973f). S. Wyckoff and P. A. Wehinger. **204**, 616, 21-B9 (1976)
- The Far Side of the Crab Nebula: Electronographic and Spectroscopic Observations. S. Wyckoff, P. A. Wehinger, R. A. E. Fosbury, and D. McMullan. **206**, 254, 45-E12 (1976)
- WEHLAU, WILLIAM. The Light Variation of Delta Scuti. Alexander Muir and William Wehlau. **205**, 155, 29-E12 (1976)
- WEINBERG, STEPHEN LEE. The Optical and X-Ray Surface Brightness of the Crab Nebula. I. A Cosmic-Ray Diffusion Model. Stephen Lee Weinberg and Joseph Silk. **205**, 563, 35-F2 (1976)
- WEINBERG, STEVEN. Apparent Luminosities in a Locally Inhomogeneous Universe. Steven Weinberg. **208**, L1, 77-A2 (1976)
- WEINSTEIN, A. Spectroscopic Survey of the Far Ultraviolet (1160–1700 Å) Emissions of Capella. R. C. Vitz, H. Weiser, H. W. Moos, A. Weinstein, and E. S. Warden. **205**, L35, 32-C6 (1976)
- WEISBERG, J. M. Further Changes in the Distribution of Density and Radio Scattering in the Solar Corona in 1973. J. M. Weisberg, J. M. Rankin, R. R. Payne, and C. C. Counselman III. **209**, 252, 90-F1 (1976)
- Optical Search for GX 17+2. A. Hoag and J. M. Weisberg. **209**, 908, 100-E12 (1976)
- WEISER, H. Spectroscopic Survey of the Far Ultraviolet (1160–1700 Å) Emissions of Capella. R. C. Vitz, H. Weiser, H. W. Moos, A. Weinstein, and E. S. Warden. **205**, L35, 32-C6 (1976)
- WEISHEIT, JON G. Model Galactic Coronae: Ionization Structure and Absorption-Line Spectra. Jon G. Weisheit and Lee A. Collins. **210**, 299, 107-B10 (1976)
- WEISS, A. W. Revised Classification of Mg II Levels between 59 and 63 eV. G. Mehlman, A. W. Weiss, and J. M. Esteva. **209**, 640, 96-D1 (1976)
- WEISS, N. O. Convective Instability in a Compressible

- Atmosphere. II. D. O. Gough, D. R. Moore, E. A. Spiegel, and N. O. Weiss. **206**, 536, 50-A12 (1976)
- WEISSKOPF, M. C. Search for X-Ray Line Emission from A0620-00. H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff. **208**, L27, 77-B13 (1976)
- Measurement of the X-Ray Polarization of the Crab Nebula. M. C. Weisskopf, G. G. Cohen, H. L. Kestenbaum, K. S. Long, R. Novick, and R. S. Wolff. **208**, L125, 86-G8 (1976)
- The Graphite Crystal X-Ray Spectrometer on OSO-8. H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff. **210**, 805, 114-A2 (1976)
- WEISTROP, D. Further Evidence Concerning the Local Density of Red Dwarfs. D. Weistrop. **204**, 113, 14-C7 (1976)
- WELCH, W. J. A Very Small Interstellar Neutral Hydrogen Cloud Observed with VLBI Techniques. N. H. Dieter, W. J. Welch, and J. D. Romney. **206**, L113, 52-D3 (1976)
- WELIACHEW, L. Gas Motions in the Center of the Galaxy NGC 253 from H I Line Interferometry. S. T. Gottesman, R. Lucas, L. Weliachew, and M. C. H. Wright. **204**, 699, 23-F4 (1976)
- WELLER, C. S. Observations of Helium in the Interplanetary/Interstellar Wind: The Solar Wake Effect: Erratum. C. S. Weller and R. R. Meier. **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 471, 68-F13)
- WELTNER, W., JR. The C α Molecule. W. R. M. Graham, K. T. Dismuke, and W. Weltner, Jr. **204**, 301, 16-C12 (1976)
- WENTZEL, DONAT G. Dynamics of Envelopes of Planetary Nebulae. Donat G. Wentzel. **204**, 452, 19-D5 (1976)
- Conditions for "Storage" of Energetic Particles in the Solar Corona. Donat G. Wentzel. **208**, 595, 81-D5 (1976)
- WERNER, M. W. One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. M. W. Werner, I. Gatley, D. A. Harper, E. E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson. **204**, 420, 19-A13 (1976)
- Infrared Studies of an Ionized Front Region in the Orion Nebula. E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner. **207**, 770, 68-G8 (1976)
- Far-Infrared Observations of IRC +10216. M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook. **208**, 396, 79-C1 (1976)
- One-Millimeter Continuum Emission Studies of Four Molecular Clouds. W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer. **209**, 94, 89-A3 (1976)
- WERNTZ, CARL. Formation of the 0.511 MeV line in Solar Flares. Carol Jo Crannell, Glenn Joyce, Reuven Ramaty, and Carl Werntz. **210**, 582, 110-C2 (1976)
- WESEMAEL, F. The Far-Ultraviolet Spectrum of Sirius B from Copernicus. Malcolm P. Savedoff, H. M. Van Horn, F. Wesemael, L. H. Auer, T. P. Snow, and D. G. York. **207**, L45, 62-D12 (1976)
- WESEMAEL, FRANÇOIS. The Distribution of the Galactic Compact X-Ray Sources: A Statistical Analysis. Sabatino Sofia and François Wesemael. **205**, 233, 30-E3 (1976)
- WEST, FREDERICK R. The Spectroscopic Binary Orbit in the Triple Star ADS 14893. Frederick R. West. **205**, 194, 30-A13 (1976)
- WESTBROOK, W. E. Far-Infrared Observations of IRC +10216. M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook. **208**, 396, 79-C1 (1976)
- One-Millimeter Continuum Emission Studies of Four Molecular Clouds. W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer. **209**, 94, 89-A3 (1976)
- WESTERLUND, B. E. Carbon Stars in the Large Magellanic Cloud. Dennis R. Crabtree, Harvey B. Richer, and B. E. Westerlund. **203**, L81, 8-D10 (1976)
- WESTPHAL, J. A. Upper Limits for the Visible Counterpart of the Hulse-Taylor Binary Pulsar. J. Kristian, K. D. Clardy, and J. A. Westphal. **206**, L143, 56-D12 (1976)
- WESTPHAL, JAMES A. The Extension of the Hubble Diagram. I. New Redshifts and BVR Photometry of Remote Cluster Galaxies, and an Improved Richness Correction. Allan Sandage, Jerome Kristian, and James A. Westphal. **205**, 688, 38-C5 (1976)
- WEYMANN, R. J. The Absorption Spectrum of the Quasar PHL 1222. R. E. Williams and R. J. Weymann. **207**, L143, 72-A2 (1976)
- WEYMANN, RAY. Confinement and Internal Structure of Radiatively Accelerated Quasar Clouds. Ray Weymann. **208**, 286, 78-B1 (1976)
- WHALEY, RAY S. Possible Mg II Emission in B Stars Observed from Copernicus. Yoji Kondo, Jerry L. Modisette, Reginald J. Dufour, and Ray S. Whaley. **206**, 163, 44-F4 (1976)
- WHANG, Y. C. A Two-Region Model of the Solar Wind Including Azimuthal Velocity. Mario H. Acuna and Y. C. Whang. **203**, 720, 10-F7 (1976)
- WHEATON, WM. A. UCSD OSO-7 Observations of the Hard X-Ray Spectrum and Variability of Centaurus A. R. F. Mushotzky, W. A. Baity, Wm. A. Wheaton, and L. E. Peterson. **206**, L45, 47-D6 (1976)
- WHEELER, J. C. Supernovae in Binary Systems: Erratum. J. C. Wheeler, M. Lecar, and C. F. McKee. **209**, 961, 101-B12 (1976) (Orig. paper in **200**, 145, 64-E1)
- WHEELER, J. CRAIG. Tidal Circularization of the Binary X-Ray Sources Hercules X-1 and Centaurus X-3. Myron Lecar, J. Craig Wheeler, and Christopher F. McKee. **205**, 556, 35-E9 (1976)
- The Binary Pulsar: Preexplosion Evolution. J. Craig Wheeler. **205**, 578, 35-G3 (1976)
- WHITE, N. E. Periodic Modulation of Three Galactic X-Ray Sources. N. E. White, K. O. Mason, H. E. Huckle, P. A. Charles, and P. W. Sanford. **209**, L119, 101-E5 (1976)
- WHITE, O. R. Preliminary Results from Orbiting Solar Observatory 8: Transition-Zone Dynamics over a Sunspot. E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. A. Shine, R. G. Athay, and O. R. White. **210**, L97, 111-D11 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Velocities in the Solar Chromosphere Observed in the Si II λ 1816 Line. E. G. Chipman, E. C. Bruner, Jr., R. A. Shine, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White. **210**, L103, 111-E4 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White. **210**, L107, 111-E8 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Persistent Velocity Fields in the Chromosphere and Transition Region. B. W. Lites, E. C. Bruner, Jr., E. G. Chipman, R. A. Shine, G. J. Rottman, O. R. White, and R. G. Athay. **210**, L111, 111-E12 (1976)
- WHITE, R. E. Isotopic Abundances of Hg in Mercury Stars Inferred from Hg II λ 3984. R. E. White, Arthur H. Vaughan, Jr., G. W. Preston, and J. P. Swings. **204**, 131, 14-D13 (1976)
- WHITE, R. STEPHEN. A Cosmic Gamma-Ray Burst on 1975 May 14. Dennis Herzog, Bruce Dayton, Allen D. Zych, and R. Stephen White. **203**, L115, 11-D13 (1976)
- Upper Limits to the Quiet-Time Solar Neutron Flux from 10 to 100 MeV. Shin Moon, George M. Simnett, and R. Stephen White. **207**, 630, 66-B1 (1976)
- WHITE, SIMON D. M. On the Use of Correlation Functions in Finding Physical Associations of Galaxies. S. Michael Fall, Margaret J. Geller, Bernard J. T. Jones, and Simon D. M. White. **205**, L121, 42-B1 (1976)
- WHITNEY, A. R. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. J. J. Wittels, W. D.

- Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell. **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr. **206**, L107, 52-C12 (1976)
- WICKRAMASINGHE, D. T. A Possible Magnetic DA White Dwarf. D. T. Wickramasinghe and M. S. Bessell. **203**, L39, 4-F1 (1976)
- WIDING, K. G. The Lithium-like $2s\ ^2S-2p\ ^2P$ Transition in Solar Flares. K. G. Widing and J. D. Purcell. **204**, L151, 27-D1 (1976)
- WIITA, PAUL J. Mass-Angular-Momentum Regimes for Certain Instabilities of a Compact, Rotating Stellar Core. Paul J. Wiita and William H. Press. **208**, 525, 80-F1 (1976)
- WILL, CLIFFORD M. Active Mass in Relativistic Gravity: Theoretical Interpretation of the Kreuzer Experiment. Clifford M. Will. **204**, 224, 15-D11 (1976)
- A Test of Post-Newtonian Conservation Laws in the Binary System PSR 1913+16. Clifford M. Will. **205**, 861, 40-C4 (1976)
- Theoretical Frameworks for Testing Relativistic Gravity. V. Post-Newtonian Limit of Rosen's Theory. David L. Lee, Carlton M. Caves, Wei-Tou Ni, and Clifford M. Will. **206**, 555, 50-C3 (1976)
- Post-Newtonian Gravitational Radiation from Orbiting Point Masses. Robert V. Wagoner and Clifford M. Will. **210**, 764, 113-E3 (1976)
- WILLIAMS, R. E. The Absorption Spectrum of the Quasar PHL 1222. R. E. Williams and R. J. Weymann. **207**, L143, 72-A2 (1976)
- WILLIAMS, T. B. Population Synthesis of the Nuclei of 10 Nearby Galaxies. T. B. Williams. **209**, 716, 98-E12 (1976)
- WILLIAMSON, F. O. Neutral Hydrogen in the Direction of the Small Magellanic Cloud and the Limits on an Extragalactic Soft X-Ray Flux. D. McCammon, S. S. Meyer, W. T. Sanders, and F. O. Williamson. **209**, 46, 88-D9 (1976)
- WILLIS, A. G. A BL Lacertae Object near the Spiral Galaxy NGC 6503. Halton Arp, Jack W. Sulentic, A. G. Willis, and H. R. de Ruiter. **207**, L13, 62-B1 (1976)
- WILLNER, S. P. 8 to 13 Micron Spectrophotometry of Compact Sources in NGC 7538. S. P. Willner. **206**, 728, 53-E3 (1976)
- Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner. **207**, 78, 58-G1 (1976)
- WILIS, BEVERLEY J. Spectroscopy of QSO Pairs. J. G. Bolton, B. A. Peterson, Beverley J. Wills, and D. Wills. **210**, L1, 106-B2 (1976)
- Spectroscopy of 206 QSO Candidates and Radio Galaxies. D. Wills and Beverley J. Wills. **31**, 143, 13-B1 (1976) (Abstr. in **205**, 658, 36-E13)
- WILLS, D. Spectroscopy of QSO Pairs. J. G. Bolton, B. A. Peterson, Beverley J. Wills, and D. Wills. **210**, L1, 106-B2 (1976)
- Spectroscopy of 206 QSO Candidates and Radio Galaxies. D. Wills and Beverley J. Wills. **31**, 143, 13-B1 (1976) (Abstr. in **205**, 658, 36-E13)
- WILLSON, L. A. Shock-Wave Interpretation of Emission Lines in Long-Period Variable Stars. I. The Velocity of the Shock. L. A. Willson. **205**, 172, 29-G1 (1976)
- WILSON, ANNE T. Parameters of Sanduleak 160 (SMC X-1) by Differential Corrections. Robert E. Wilson and Anne T. Wilson. **204**, 551, 20-E1 (1976)
- WILSON, JAMES R. A Possible Mechanism for Mass Transfer in X-Ray Binary Systems with OB Supergiant Companions. Marvin L. Alme and James R. Wilson. **210**, 233, 105-E4 (1976)
- WILSON, O. C. Absolute Magnitudes of Stars from Widths of Chromospheric Ca II Emission Lines. O. C. Wilson. **205**, 823, 39-F12 (1976)
- WILSON, R. W. Isotope Abundances in Interstellar Molecular Clouds. P. G. Wannier, A. A. Penzias, R. A. Linke, and R. W. Wilson. **204**, 26, 13-C6 (1976)
- Isotopic Abundances in Interstellar Carbon Monosulfide. R. W. Wilson, A. A. Penzias, P. G. Wannier, and R. A. Linke. **204**, L135, 27-C1 (1976)
- The Abundance Ratio $^{17}\text{O}/^{18}\text{O}$ in Dense Interstellar Clouds. P. G. Wannier, R. Lucas, R. A. Linke, P. J. Encrenaz, A. A. Penzias, and R. W. Wilson. **205**, L169, 42-E1 (1976)
- WILSON, ROBERT E. Effects of Tidal Distortion on Binary-Star Velocity Curves and Ellipsoidal Variation. Robert E. Wilson and Sabatino Sofia. **203**, 182, 3-A2 (1976)
- Parameters of Sanduleak 160 (SMC X-1) by Differential Corrections. Robert E. Wilson and Anne T. Wilson. **204**, 551, 20-E1 (1976)
- WILSON, W. Cygnus A at 8.5 Millimeter Wavelength. O. Hachenberg, E. Fürst, W. Harth, P. Steffen, W. Wilson, and W. Hirth. **206**, L19, 47-B6 (1976)
- WILSON, W. J. Accurate Positions of OH Emission Sources. N. J. Evans II, Richard M. Crutcher, and W. J. Wilson. **206**, 440, 49-A10 (1976)
- WING, ROBERT F. The Temperature, Luminosity, and Spectrum of Kapteyn's Star. Robert F. Wing, Charles A. Dean, and Darrell J. MacConnell. **205**, 186, 30-A2 (1976)
- WINKLER, P. FRANK, JR. Detection of X-Ray Emission from the Remnant of the Supernova 1006 A.D. P. Frank Winkler, Jr. and Frank N. Laird. **204**, L111, 27-A2 (1976)
- WINTERS, R. R. Stellar Neutron Capture in the Thallium Isotopes. R. L. Macklin and R. R. Winters. **208**, 812, 85-A10 (1976)
- WITHBROE, G. L. Extreme-Ultraviolet Transients Observed at the Solar Pole. G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza. **203**, 528, 7-F5 (1976)
- WITT, A. N. Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXV. Diffuse Galactic Light in the 1500-4200 Å Region and the Scattering Properties of Interstellar Dust Grains. C. F. Lillie and A. N. Witt. **208**, 64, 74-F1 (1976)
- Surface Brightness Profiles of Dark Nebulae: The Thumbprint Nebula in Chamaeleon. M. P. Fitzgerald, T. C. Stephens, and A. N. Witt. **208**, 709, 83-G9 (1976)
- WITTEBORN, FRED C. Combined Ground and Aircraft Based 1-4 Micron Spectra of LkHα 101. Rodger I. Thompson, Edwin F. Erickson, Fred C. Witteborn, and D. W. Strecker. **210**, L31, 106-D1 (1976)
- WITTLES, J. J. Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell. **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr. **206**, L107, 52-C12 (1976)
- WITZEL, A. Rapid Increase in the Size of 3C 345. M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart. **206**, L1, 47-A2 (1976)
- Observations of a Radio Source in the Nucleus of M81 with Dimensions Less than 1300 Astronomical Units 12:50 11/05/76. K. I. Kellermann, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, and A. Witzel. **210**, L121, 115-A6 (1976)
- WOJSLAW, ROBERT S. Identification of Novel Molecules in the Spectrum of 19 Piscium. Robert S. Wojslaw and Benjamin F. Peery, Jr. **31**, 75, 12-B1 (1976) (Abstr. in **205**, 656, 36-E11)

- WOLF, R. A. Star Distribution around a Massive Black Hole in a Globular Cluster. *J. N. Bahcall and R. A. Wolf*. **209**, 214, 90-C1 (1976)
- WOLFE, A. M. 3C 286: A Cosmological QSO? *A. M. Wolfe, J. J. Broderick, J. J. Condon, and K. J. Johnston*. **208**, L47, 82-A2 (1976)
- WOLFF, CHARLES L. Timing of Solar Cycles by Rigid Internal Rotations. *Charles L. Wolff*. **205**, 612, 36-B10 (1976)
- WOLFF, RICHARD J. HR 7129: A Helium Variable with a Large Magnetic Field. *Richard J. Wolff and Sidney C. Wolff*. **203**, 171, 2-G5 (1976)
- WOLFF, R. S. New Observations of Pulsed X-Ray Emission from NP 0532. *H. L. Kestenbaum, W. Ku, R. Novick, and R. S. Wolff*. **203**, L57, 8-B11 (1976)
- Energy Dependence of the Size of the X-Ray Source in the Crab Nebulae. *W. Ku, H. L. Kestenbaum, R. Novick, and R. S. Wolff*. **204**, L77, 22-B5 (1976)
- The X-Ray Structure of the Perseus Cluster of Galaxies. *R. S. Wolff, R. J. Mitchell, P. A. Charles, and J. L. Culhane*. **208**, 1, 74-A4 (1976)
- Search for X-Ray Line Emission from A0620-00. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **208**, L27, 77-B13 (1976)
- Measurement of the X-Ray Polarization of the Crab Nebula. *M. C. Weisskopf, G. G. Cohen, H. L. Kestenbaum, K. S. Long, R. Novick, and R. S. Wolff*. **208**, L125, 86-G8 (1976)
- The Graphite Crystal X-Ray Spectrometer on OSO-8. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **210**, 805, 114-A2 (1976)
- WOLFF, RICHARD S. A Soft X-Ray Map of the Perseus Cluster of Galaxies. *Webster Cash, Roger F. Malina, and Richard S. Wolff*. **209**, L111, 101-D7 (1976)
- WOLFF, SIDNEY C. HR 7129: A Helium Variable with a Large Magnetic Field. *Richard J. Wolff and Sidney C. Wolff*. **203**, 171, 2-G5 (1976)
- WOLFSON, R. Optical Identification of A0620-00. *F. Boley, R. Wolfson, H. Bradt, R. Doxsey, G. Jernigan, and W. A. Hiltner*. **203**, L13, 4-D2 (1976)
- WOLKEN, PAMELA R. Are the Broad Continuous Absorption Features of Magnetic Peculiar A Stars Bound-free Discontinuities? *Saul J. Adelman and Pamela R. Wolken*. **207**, L59, 59-F8 (1976)
- WOLLMAN, E. R. Spectral and Spatial Resolution of the 12.8 Micron Ne II Emission from the Galactic Center. *E. R. Wollman, T. R. Geballe, J. H. Lacy, C. H. Townes, and D. M. Rank*. **205**, L5, 32-A7 (1976)
- WOO, RICHARD. Measurements of Large-Scale Density Fluctuations in the Solar Wind Using Dual-Frequency Phase Scintillations. *Richard Woo, Fang-Chou Yang, Kabing W. Yip, and William B. Kendall*. **210**, 568, 110-A8 (1976)
- Structure of Density Fluctuations near the Sun Deduced from Pioneer-6 Spectral Broadening Measurements. *Richard Woo, Fang-Chou Yang, and Akira Ishimaru*. **210**, 593, 110-C13 (1976)
- WOODS, R. C. The Microwave Spectrum of Hydrogen Isocyanide. *R. J. Saykally, P. G. Szanto, T. G. Anderson, and R. C. Woods*. **204**, L143, 27-C8 (1976)
- WOODS, R. CLAUDE. Laboratory Microwave Spectrum and Rest Frequencies of the N_2H^+ Ion. *Richard J. Saykally, Thomas A. Dixon, Thomas G. Anderson, Peter G. Szanto, and R. Claude Woods*. **205**, L101, 37-D1 (1976)
- WOODSWORTH, A. W. A Dynamical Model for the Radio Outbursts of Cygnus X-3. *A. W. Woodsworth and V. A. Hughes*. **208**, 863, 85-E6 (1976)
- WOODWARD, PAUL R. Shock-driven Implosion of Interstellar Gas Clouds and Star Formation. *Paul R. Woodward*. **207**, 484, 64-E5 (1976)
- WOOLF, N. J. The Origin of Optical Polarization in NGC 1068. *J. R. P. Angel, H. S. Stockman, N. J. Woolf, E. A. Beaver, and P. G. Martin*. **206**, L5, 47-A5 (1976)
- IRC +10 420: A Hot Supergiant Maser. *P. T. Giguere, N. J. Woolf, and J. C. Webber*. **207**, L195, 72-E3 (1976)
- WOOLF, NEVILLE J. The Infrared Emission of Upsilon Sagittarii, 89 Herculis, and R Coronae Borealis. *Richard Treffers, Neville J. Woolf, Uwe Fink, and Harold P. Larson*. **207**, 680, 66-E10 (1976)
- WORDEN, S. P. Digital Image Reconstruction Applied to Alpha Orionis. *C. R. Lynds, S. P. Worden, and J. W. Harvey*. **207**, 174, 59-G9 (1976)
- WORDEN, SIMON P. Mass Loss from Dwarf M Stars through Stellar Flaring. *Gary D. Colman and Simon P. Worden*. **205**, 475, 34-F11 (1976)
- The Emission Lines in the Vicinity of Hydrogen-Alpha in dMe Flare Star Spectra. *Simon P. Worden and Bradley M. Peterson*. **206**, L145, 56-E1 (1976)
- On the Origin of the 2^{nd} Solar Oscillations. *Simon P. Worden and George W. Simon*. **210**, L163, 115-D4 (1976)
- WRAY, J. D. Skylab Ultraviolet Stellar Spectra: Cool Stars with Hot Secondaries. *S. B. Parsons, J. D. Wray, Y. Kondo, K. G. Henize, and G. F. Benedict*. **203**, 435, 6-E9 (1976)
- Skylab Ultraviolet Stellar Spectra: A New White Dwarf, HD 149499. *B. S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and M. Laget*. **206**, L71, 47-F4 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. *Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey*. **208**, 468, 80-A9 (1976)
- WRIGHT, ALAN E. Redshifts of Southern Radio Sources. *Bruce A. Peterson, David L. Jauncey, Alan E. Wright, and James J. Condon*. **207**, L5, 62-A6 (1976)
- WRIGHT, E. L. A Far-Infrared Map of the Ophiuchus Dark Cloud Region. *G. G. Fazio, E. L. Wright, M. Zeilik II, and F. J. Low*. **206**, L165, 56-F5 (1976)
- H $_2$ O and 22 GHz Continuum Observations of M17. *Charles J. Lada, Dale F. Dickinson, C. A. Gottlieb, and E. L. Wright*. **207**, 113, 59-C1 (1976)
- 8-13 Micron Spectrophotometry of NGC 1068. *D. E. Kleinmann, F. C. Gillett, and E. L. Wright*. **208**, 42, 74-D6 (1976)
- Far-Infrared Observations of M20 (NGC 6514). *E. L. Wright, G. G. Fazio, and F. J. Low*. **208**, L87, 82-C12 (1976)
- The Effective Temperature of Uranus. *G. G. Fazio, W. A. Traub, E. L. Wright, F. J. Low, and L. Trafton*. **209**, 633, 96-C7 (1976)
- The Infrared Source near the Rapid-Burst X-Ray Source MXB 1730-335. *D. E. Kleinmann, S. G. Kleinmann, and E. L. Wright*. **210**, L83, 111-C10 (1976)
- WRIGHT, EDWARD L. Optical Observations of the Recurrent Nova Associated with A0620-00: 1917-1975. *Lola J. Eachus, Edward L. Wright, and William Liller*. **203**, L17, 4-D8 (1976)
- Recalibration of the Far-Infrared Brightness Temperatures of the Planets. *Edward L. Wright*. **210**, 250, 105-F7 (1976)
- WRIGHT, M. C. H. Gas Motions in the Center of the Galaxy NGC 253 from H I Line Interferometry. *S. T. Gottesman, R. Lucas, L. Weliachew, and M. C. H. Wright*. **204**, 699, 23-F4 (1976)
- Aperture Synthesis of Neutral Hydrogen in the Galaxy M33. *D. H. Rogstad, M. C. H. Wright, and I. A. Lockhart*. **204**, 703, 23-F8 (1976)
- WU, C. S. A Local Diffusion Process Associated with the Sweeping of Energetic Particles by Io. *J. D. Huba and C. S. Wu*. **203**, 268, 3-G10 (1976)
- WYATT, S. P. The Birthrate of Planetary Nebulae. *J. H. Cahn and S. P. Wyatt*. **210**, 508, 109-D3 (1976)
- WYCKOFF, S. Molecular Ions in Comet Tails. *S. Wyckoff and P. A. Wehinger*. **204**, 604, 21-A12 (1976)
- On the Ionization and Excitation of H $_2$ O $^+$ in Comet Kohoutek (1973f). *S. Wyckoff and P. A. Wehinger*. **204**, 616, 21-B9 (1976)
- The Far Side of the Crab Nebula: Electronographic and Spectroscopic Observations. *S. Wyckoff, P. A. Wehinger, R. A. E. Fosbury, and D. McMullan*. **206**, 254, 45-E12

- (1976)
- WYNN-WILLIAMS, C. G. Late-Type Giants and Supergiants in the Galactic Center. *G. Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams*. **205**, L139, 42-C3 (1976)
- YAHIL, A. The Universe as a "Non-Ideal Gas" of Galaxies. *A. Yahil*. **204**, L59, 22-A2 (1976)
- Big-Bang Nucleosynthesis with Nonzero Lepton Numbers. *A. Yahil and G. Beaudet*. **206**, 26, 43-C1 (1976)
- The Universe as a Non-Ideal Gas of Galaxies: Erratum. *A. Yahil*. **207**, L217, 72-F13 (1976) (Orig. paper in **204**, L59, 22-A2)
- A New Luminosity Limit for Spherical Accretion onto Compact X-Ray Sources. *Jeremiah P. Ostriker, Richard McCray, Robert Weaver, and A. Yahil*. **208**, L61, 82-B1 (1976)
- YANG, CHAO-KUNG. Compressible Magnetic Field Reconnection: A Slow Wave Model. *Chao-Kung Yang and Bengt U. Ö. Sonnerup*. **206**, 570, 50-D4 (1976)
- YANG, FANG-CHOU. Measurements of Large-Scale Density Fluctuations in the Solar Wind Using Dual-Frequency Phase Scintillations. *Richard Woo, Fang-Chou Yang, Kabing W. Yip, and William B. Kendall*. **210**, 568, 110-A8 (1976)
- Structure of Density Fluctuations near the Sun Deduced from Pioneer-6 Spectral Broadening Measurements. *Richard Woo, Fang-Chou Yang, and Akira Ishimaru*. **210**, 593, 110-C13 (1976)
- YAU, ANDREW W. Fine-Structure Excitation of Carbon by Atomic Hydrogen Impact. *Andrew W. Yau and A. Dalgarno*. **206**, 652, 51-D4 (1976)
- YEH, TYAN. Mass and Angular Momentum Effluxes of Stellar Winds. *Tyan Yeh*. **206**, 768, 54-A2 (1976)
- Diffusive Hydromagnetic Flow in the Vicinity of a Neutral Point. *Tyan Yeh*. **207**, 837, 69-E7 (1976)
- YENTIS, D. Discovery of X-Ray Pulsations in SMC X-1. *R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman*. **206**, L25, 47-B13 (1976)
- Soft X-Rays from Hercules X-1 During the "Off" State. *G. Fritz, S. Naranan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder*. **207**, L29, 62-C11 (1976)
- YIP, KABING W. Measurements of Large-Scale Density Fluctuations in the Solar Wind Using Dual-Frequency Phase Scintillations. *Richard Woo, Fang-Chou Yang, Kabing W. Yip, and William B. Kendall*. **210**, 568, 110-A8 (1976)
- YNGVESSON, K. S. Water Vapor Emission from H II Regions and Infrared Stars. *B. T. Cato, B. O. Rönning, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngve, A. G. Cardasmenos, and J. F. Shanley*. **208**, 87, 74-G11 (1976)
- YORK, D. G. The Far-Ultraviolet Spectrum of Sirius B from Copernicus. *Malcolm P. Savedoff, H. M. Van Horn, F. Wesemael, L. H. Auer, T. P. Snow, and D. G. York*. **207**, L45, 62-D12 (1976)
- YORK, DONALD G. The Abundance of Deuterium Relative to Hydrogen in Interstellar Space. *Donald G. York and John B. Rogerson, Jr.* **203**, 378, 6-A1 (1976)
- On the Existence of Molecular Hydrogen along Lines of Sight with Low Reddening. *Donald G. York*. **204**, 750, 24-C1 (1976)
- Spectroscopic Observations of the Candidate Star Coincident with A0620-00. *Theodore Gull, Donald G. York, Theodore P. Snow, Jr., and Karl G. Henize*. **206**, 260, 45-F6 (1976)
- Circumstellar Matter in the Binary V Puppis. *Donald G. York, Brian Flannery, and John Bahcall*. **210**, 143, 104-E11 (1976)
- YOUNG, ARTHUR. An Improved Spectroscopic Orbit for the White Dwarf Eclipsing Binary BD +16°516. *Arthur Young*. **205**, 182, 29-G11 (1976)
- YOUNG, P. J. Light Curve of Nova V1500 Cygni 1975. *P. J. Young, H. G. Corwin, Jr., J. Bryan, and G. de Vaucouleurs*. **209**, 882, 100-C11 (1976)
- YUEH, WILLIAM R. Compton Scattering Opacities in a Partially Degenerate Electron Plasma at High Temperatures. *J. Robert Buchler and William R. Yueh*. **210**, 440, 108-F3 (1976)
- ZAHN, JEAN-PAUL. Stellar Convection Theory. I. The Anelastic Modal Equations. *Jean Latour, Edward A. Spiegel, Juri Toomre, and Jean-Paul Zahn*. **207**, 233, 60-E1 (1976)
- Stellar Convection Theory. II. Single-Mode Study of the Second Convection Zone in an A-Type Star. *Juri Toomre, Jean-Paul Zahn, Jean Latour, and Edward A. Spiegel*. **207**, 545, 65-C1 (1976)
- ZAIDINS, C. S. Thermonuclear Reaction Rates Derived from Thick-Target Yields. *N. A. Roughton, M. J. Fritts, R. J. Peterson, C. S. Zaidins, and C. J. Hansen*. **205**, 302, 31-C4 (1976)
- ZAUMEN, W. T. Pair Production in Intense Magnetic Fields. *W. T. Zaumen*. **210**, 776, 113-F1 (1976)
- ZEILIK, M., II. A Far-Infrared Map of the Ophiuchus Dark Cloud Region. *G. G. Fazio, E. L. Wright, M. Zeilik II, and F. J. Low*. **206**, L165, 56-F5 (1976)
- ZEMELMAN, MARIO. Emission-Line Galaxies and Quasars. II. The Classification Systems and List N1, Declination $\leq -27^\circ 5'$, Galactic Latitude $\geq +20^\circ$ E. *Malcolm G. Smith, Cecilia Aguirre, and Mario Zemelman*. **32**, 217, 25-F1 (1976) (Abstr. in **208**, 955, 86-E4)
- ZIMMERMAN, ROBERT L. Polarized Radiation in Magnetic White Dwarfs. *Leonard A. Rosi, Robert L. Zimmerman, and James C. Kemp*. **209**, 868, 100-B11 (1976)
- ZINN, ROBERT. The Masses of the Anomalous Cepheids in the Draco System. *Robert Zinn and Leonard Searle*. **209**, 734, 98-G2 (1976)
- ZIOLKOWSKI, J. An Evolutionary Model of Beta Lyrae. *J. Ziolkowski*. **204**, 512, 20-A11 (1976)
- ZIPOY, DAVID M. Reddening of Planetary Nebulae: NGC 2392. *David M. Zipoy*. **209**, 108, 89-B4 (1976)
- ZIRIN, H. Further Observations of the $\lambda 10830$ Helium Line in Stars and their Significance as a Measure of Stellar Activity. *H. Zirin*. **208**, 414, 79-D7 (1976)
- ZIRKER, J. B. Lyman-Alpha Emission from Nonthermal Proton Beams. *F. Q. Orrall and J. B. Zirker*. **208**, 618, 81-F1 (1976)
- ZISMAN, S. Rotating Stellar Models According to the Quasi-dynamic Method. *A. Kovetz, G. Shaviv, and S. Zisman*. **206**, 809, 54-D1 (1976)
- ZUBROD, D. The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. *T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod*. **210**, L127, 115-A12 (1976)
- ZUCKERMAN, B. Observation of the 616-515 Transitions of Acetaldehyde in Sagittarius B2. *W. Gilmore, M. Morris, D. R. Johnson, F. J. Lovas, B. Zuckerman, B. E. Turner, and P. Palmer*. **204**, 43, 13-D10 (1976)
- Cyanoacetylene in Dense Interstellar Clouds. *M. Morris, B. E. Turner, Patrick Palmer, and B. Zuckerman*. **205**, 82, 28-G9 (1976)
- CRL 2688: A Post-Carbon-Star Object and Probable Planetary Nebula Progenitor. *B. Zuckerman, Daya P. Gilra, B. E. Turner, M. Morris, and Patrick Palmer*. **205**, L15, 32-B2 (1976)
- High-Velocity Gas in the Orion Infrared Nebula. *B. Zuckerman, T. B. H. Kuiper, and E. N. Rodriguez Kuiper*. **209**, L137, 101-F13 (1976)
- ZWEIBEL, ELLEN G. Radiative Processes Affecting the Abundance of Interstellar OH. *Wm. Hayden Smith and Ellen G. Zweibel*. **207**, 758, 68-F9 (1976)
- ZWEIFEL, P. F. A Banach Space Analysis of the Chandrasekhar H-Equation. *R. L. Bowden and P. F. Zweifel*. **210**, 178, 105-A4 (1976)
- ZYCH, ALLEN D. A Cosmic Gamma-Ray Burst on 1975 May 14. *Dennis Herzo, Bruce Dayton, Allen D. Zych, and R. Stephen White*. **203**, L115, 11-D13 (1976)

1976 ANNUAL INDEX

SUBJECT HEADINGS

- Absolute Magnitudes: see Stars: Luminosities
- Absorption: see Opacities
- Abundances 73 1-G4
- Addenda: see Errata and Addenda
- Announcements: see Notices
- Asteroids 73 1-G4
- Atomic Processes 73 1-G4
- Autoionization: see Atomic Processes

- Black Holes 74 1-G5
- BL Lacertae Objects 74 1-G5

- Cataclysmic Stars: see Stars: Novae; Stars: U Geminorum
- Ca II Emission 74 1-G5
- Celestial Mechanics 74 1-G5
- Clusters: Associations 74 1-G5
- Clusters: Globular 75 1-G6
- Clusters: Open 75 1-G6
- Cluster-Type Variables: see Stars: RR Lyrae
- Comets 76 1-G7
- Convection 76 1-G7
- Cool Stars: see Stars: Late-Type
- Cosmic Background Radiation 76 1-G7
- Cosmic Rays: Abundances 76 1-G7
- Cosmic Rays: General 77 1-G8
- Cosmology 77 1-G8

- Dense Matter 78 1-G9
- Deuterium 78 1-G9
- Double Stars: see Stars: Binaries; Stars: Visual Multiples

- Earth: Airglow 78 1-G9
- Earth: Atmosphere 79 1-G10
- Earth: Aurorae 79 1-G10
- Earth: General 79 1-G10
- Editorials: see Notices
- Elementary Particles 79 1-G10
- Equation of State 79 1-G10
- Equations: see Functions: Numerical Methods
- Errata and Addenda 79 1-G10
- Excitation and Ionization: see Atomic Processes

- Forbidden Lines 79 1-G10
- Functions: Numerical Methods 79 1-G10
- Fundamental Constants 79 1-G10
- f*-Values: see Transition Probabilities

- Galaxies: Clusters of 79 1-G10
- Galaxies: Evolution 81 1-G12
- Galaxies: Formation 81 1-G12
- Galaxies: General 81 1-G12
- Galaxies: Individual 81 1-G12
- Galaxies: Intergalactic Medium 82 1-G13
- Galaxies: Internal Motions 82 1-G13
- Galaxies: Magellanic Clouds 83 1-G14
- Galaxies: Milky Way 83 1-G14
- Galaxies: Nuclei 83 1-G14
- Galaxies: Photometry 84 2-A1
- Galaxies: Redshifts 85 2-A2
- Galaxies: Seyfert 85 2-A2
- Galaxies: Stellar Content 86 2-A3
- Galaxies: Stellar Statistics 86 2-A3
- Galaxies: Structure 86 2-A3
- Galaxy, The: see Galaxies: Milky Way
- Gamma Rays: Bursts 87 2-A4
- Gamma Rays: General 87 2-A4
- Gas Dynamics: see Hydrodynamics
- Gravitation 88 2-A5

- H II Regions: see Nubulae: General
- Hydrodynamics 88 2-A5
- Hydromagnetics 88 2-A5
- Hyperfine Structure 89 2-A6

- Image Processing 89 2-A6
- Infrared: General 89 2-A6
- Infrared: Sources 89 2-A6
- Infrared: Spectra 90 2-A7
- Instabilities 91 2-A8
- Instruments 91 2-A8
- Interferometry 91 2-A8
- Interplanetary Medium 91 2-A8
- Interstellar: Abundances 92 2-A9
- Interstellar: Magnetic Fields 92 2-A9
- Interstellar: Matter 92 2-A9
- Interstellar: Molecules 94 2-A11
- Ionization: see Atomic Processes

- Laboratory Spectra 95 2-A12
- Line Formation 96 2-A13
- Line Identifications 96 2-A13
- Line Profiles 96 2-A13
- Luminosity Function 97 2-A14

- Magnetic Fields 97 2-A14
- Magnetohydrodynamics: see Hydromagnetics
- Masers 97 2-A14
- Mass-Luminosity Relation 98 2-B1
- Metal-poor Stars: see Stars: Weak-Line
- Meteors and Meteorites 98 2-B1
- Microwave Radiation: see Radio Sources: General
- Mira Variables: see Stars: Long-Period Variables
- Molecular Processes 98 2-B1
- Moon 99 2-B2

- Nebulae: Abundances 99 2-B2
- Nebulae: Crab Nebula 99 2-B2
- Nebulae: General 99 2-B2
- Nebulae: Individual 100 2-B3
- Nebulae: Orion Nebula 101 2-B4
- Nebulae: Planetary 101 2-B4
- Nebulae: Supernova Remnants 101 2-B4

- Neutrinos 102 2-B5
 Notices 102 2-B5
 Nuclear Reactions 102 2-B5
 Nucleosynthesis 102 2-B5
- Occultations 103 2-B6
 Opacities 103 2-B6
- Photometry 103 2-B6
 Planets: Abundances 103 2-B6
 Planets: Atmospheres 104 2-B7
 Planets: General 104 2-B7
 Planets: Interiors 104 2-B7
 Planets: Jupiter 104 2-B7
 Planets: Limb Darkening 104 2-B7
 Planets: Mars 104 2-B7
 Planets: Mercury 104 2-B7
 Planets: Neptune 104 2-B7
 Planets: Pluto 104 2-B7
 Planets: Radio Radiation 104 2-B7
 Planets: Satellites 104 2-B7
 Planets: Saturn 105 2-B8
 Planets: Spectra 105 2-B8
 Planets: Uranus 105 2-B8
 Planets: Venus 105 2-B8
 Plasmas 105 2-B8
 Polarization 105 2-B8
 Proper Motions: see Stars: Stellar Dynamics
 Pulsars 106 2-B9
- Quantum Mechanics 107 2-B10
 Quasars 107 2-B10
- Radar Astronomy 108 2-B11
 Radial Velocities 108 2-B11
 Radiative Transfer 108 2-B11
 Radio Sources: Extended 109 2-B12
 Radio Sources: General 109 2-B12
 Radio Sources: Lines 110 2-B13
 Radio Sources: Spectra 111 2-B14
 Radio Sources: 21 cm Radiation 111 2-B14
 Radio Sources: Variable 111 2-B14
 Relativity 112 2-C1
 Rotation 112 2-C1
- Shock Waves 113 2-C2
 Sky Photographs 113 2-C2
 Solar System: General 113 2-C2
 Spectrophotometry 113 2-C2
 Spiral Structure: see Galaxies: Structure
 SS Cygni Stars: see Stars: U Geminorum
 Stars: Abundances 113 2-C2
 Stars: Accretion 114 2-C3
 Stars: Atmospheres 114 2-C3
 Stars: Ba II 115 2-C4
 Stars: Be 115 2-C4
 Stars: β Cephei 115 2-C4
 Stars: Binaries 115 2-C4
 Stars: Black Holes: see Black Holes
 Stars: Carbon 117 2-C6
 Stars: Catalogs 117 2-C6
 Stars: Cepheids 117 2-C6
 Stars: Chromospheres 117 2-C6
 Stars: Circumstellar Shells 117 2-C6
 Stars: Collapsed 118 2-C7
 Stars: Combination Spectra 118 2-C7
 Stars: Coronae 118 2-C7
 Stars: δ Scuti 118 2-C7
 Stars: Dwarf Novae 118 2-C7
 Stars: Early-Type 119 2-C8
 Stars: Eclipsing Binaries 119 2-C8
 Stars: Emission-Line 119 2-C8
 Stars: Evolution 120 2-C9
 Stars: Faint Blue 121 2-C10
 Stars: Flare 121 2-C10
 Stars: Formation 121 2-C10
 Stars: High-Velocity 121 2-C10
 Stars: Horizontal Branch 122 2-C11
 Stars: Hydrogen-Deficient 122 2-C11
 Stars: Individual 122 2-C11
 Stars: Interiors 123 2-C12
 Stars: Late-Type 124 2-C13
 Stars: Limb Darkening 125 2-C14
 Stars: Long-Period Variables 125 2-C14
 Stars: Luminosities 125 2-C14
 Stars: Magnetic 125 2-C14
 Stars: Massive 125 2-C14
 Stars: Mass Loss 125 2-C14
 Stars: Metallic-Line 126 2-D1
 Stars: Neutron 126 2-D1
 Stars: Novae 127 2-D2
 Stars: Of-Type 127 2-D2
 Stars: Peculiar A 127 2-D2
 Stars: Population II 128 2-D3
 Stars: Pre-Main-Sequence 128 2-D3
 Stars: Proper-Motion 128 2-D3
 Stars: Pulsation 128 2-D3
 Stars: R Coronae Borealis 128 2-D3
 Stars: Rotation 128 2-D3
 Stars: RR Lyrae 129 2-D4
 Stars: RV Tauri 129 2-D4
 Stars: Semiregular Variables 129 2-D4
 Stars: Short-Period Variables 129 2-D4
 Stars: Spectral Classification 129 2-D4
 Stars: Spectrum Variables 129 2-D4
 Stars: Stellar Dynamics 129 2-D4
 Stars: Stellar Statistics 130 2-D5
 Stars: S-Type 130 2-D5
 Stars: Subdwarfs 130 2-D5
 Stars: Supergiants 130 2-D5
 Stars: Supernovae 130 2-D5
 Stars: U Geminorum 131 2-D6
 Stars: Variables 131 2-D6
 Stars: Visual Multiples 131 2-D6
 Stars: Weak-Line 131 2-D6
 Stars: White Dwarfs 131 2-D6
 Stars: Winds 132 2-D7
 Stars: Wolf-Rayet 132 2-D7
 Stars: W Ursae Majoris 132 2-D7
 Sun: Abundances 133 2-D8
 Sun: Activity 133 2-D8
 Sun: Atmosphere 133 2-D8
 Sun: Atmospheric Motions 133 2-D8
 Sun: Chromosphere 133 2-D8
 Sun: Corona 133 2-D8
 Sun: Eclipses 134 2-D9
 Sun: Faculae 134 2-D9
 Sun: Flares 134 2-D9
 Sun: General 134 2-D9
 Sun: Granulation 134 2-D9
 Sun: Interior 134 2-D9
 Sun: Limb Darkening 134 2-D9
 Sun: Magnetic Fields 134 2-D9
 Sun: Plages 135 2-D10
 Sun: Prominences 135 2-D10
 Sun: Radio Radiation 135 2-D10
 Sun: Rotation 135 2-D10
 Sun: Solar Wind 135 2-D10
 Sun: Spectra 135 2-D10
 Sun: Spectroheliograms 136 2-D11
 Sun: Sunspots 136 2-D11

- Sun: X-Rays 136 2-D11
Symbiotic Stars: see Stars: Combination Spectra
Synchrotron Radiation 136 2-D11

3° Cosmic Radiation: see Cosmic Background Radiation
Transition Probabilities 136 2-D11
T Tauri Stars: see Stars: Pre-Main-Sequence
Turbulence 137 2-D11

Ultraviolet: General 137 2-D12
Ultraviolet: Spectra 137 2-D12

W Virginis Stars: see Stars: Cepheids

X-Rays: Binaries 138 2-D13
X-Rays: Bursts 138 2-D13
X-Rays: General 139 2-D14
X-Rays: Sources 139 2-D14
X-Rays: Spectra 142 2-E3
X-Rays: Variable: see X-Rays: Bursts

Zeeman Effect 142 2-E3
Zodiacal Light 142 2-E3



1975 ANNUAL INDEX SUBJECT INDEX

Absolute Magnitudes: see Stars: Luminosities

Absorption: see Opacities

Abundances

- Further Studies of Ionization in Interstellar Clouds. *L. M. Hobbs*. **203**, 143, 2-E1 (1976)
- The Abundance of Deuterium Relative to Hydrogen in Interstellar Space. *Donald G. York and John B. Rogerson, Jr.*. **203**, 378, 6-A1 (1976)
- On the Primordial Abundance of Argon-40. *F. Begemann, H. W. Weber, and H. Hintenberger*. **203**, L155, 11-G9 (1976)
- Multiple Ionization by Low-Energy Cosmic Rays and the Abundance of Highly Ionized Interstellar Atoms. *William D. Watson*. **204**, 47, 13-E1 (1976)
- The Abundance of Nitrogen in QSOs. *G. A. Shields*. **204**, 330, 18-B5 (1976)
- An Analysis of the Interstellar Material in the Line of Sight toward Omicron Persei. *Theodore P. Snow, Jr.*. **204**, 759, 24-C11 (1976)
- Big-Bang Nucleosynthesis with Nonzero Lepton Numbers. *A. Yahil and G. Beaudet*. **206**, 26, 43-C1 (1976)
- Lyman-Alpha Observations of Comet Kohoutek 1973 XII with *Copernicus*. *J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller*. **209**, 302, 91-B10 (1976)
- Composition Gradients in Spiral Galaxies: A Consistency Check on the Density-Wave Theory. *E. B. Jensen, K. M. Strom, and S. E. Strom*. **209**, 748, 99-A1 (1976)
- s-Process Studies: Branching and the Time Scale. *Richard A. Ward, Michael J. Newman, and Donald D. Clayton*. **31**, 33, 11-E1 (1976) (Abstr. in **205**, 655, 36-E10)

Addenda: see Errata and Addenda

Announcements: see Notices

Asteroids

- Radiometric Diameters for an Additional 22 Asteroids. *David Morrison and Clark R. Chapman*. **204**, 934, 26-B8 (1976)

Atomic Processes

- Investigation of Forbidden Transitions in Argon Ions. *N. W. Jalufka*. **203**, 279, 4-A7 (1976)
- The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
- Physical Conditions in a Hydrogen Gas Heated by Suprathermal Protons. *Edward Kimmer*. **203**, 674, 10-C1 (1976)
- Isotope Abundances in Interstellar Molecular Clouds. *P. G. Wannier, A. A. Penzias, R. A. Linke, and R. W. Wilson*. **204**, 26, 13-C6 (1976)
- Multiple Ionization by Low-Energy Cosmic Rays and the Abundance of Highly Ionized Interstellar Atoms. *William D. Watson*. **204**, 47, 13-E1 (1976)
- Radiative Cooling of a Low-Density Plasma. *John C. Raymond, Donald P. Cox, and Barham W. Smith*. **204**, 290, 16-C1 (1976)
- Forbidden and Permitted Emission Lines of Singly Ionized Iron as a Diagnostic in the Investigation of Stellar Emission-Line Spectra. *R. Viotti*. **204**, 293, 16-C4 (1976)
- Molecular Ions in Comet Tails. *S. Wyckoff and P. A. Wehinger*. **204**, 604, 21-A12 (1976)
- On the Ionization and Excitation of H_2O^+ in Comet Kohoutek

(1973f). *S. Wyckoff and P. A. Wehinger*. **204**, 616, 21-B9 (1976)

Possible Collisional Enhancement of He I $\lambda 5876$ in Seyfert Galaxies and QSOs. *Gordon M. MacAlpine*. **204**, 694, 23-E13 (1976)

On the Existence of Molecular Hydrogen along Lines of Sight with Low Reddening. *Donald G. York*. **204**, 750, 24-C1 (1976)

The Lithium-like $2s^2S-2p^2P$ Transition in Solar Flares. *K. G. Widing and J. D. Purcell*. **204**, L151, 27-D1 (1976)

Radiative Association in Dense, H_2 -containing Interstellar Clouds. *Eric Herbst*. **205**, 94, 29-A7 (1976)

The Thermal Effects of H_2 Molecules in Rotating and Collapsing Spheroidal Gas Clouds. *John B. Hutchins*. **205**, 103, 29-B2 (1976)

High-Resolution Profiles of the Diffuse Interstellar Feature at 5780 \AA . *Blair D. Savage*. **205**, 122, 29-C7 (1976)

Statistical Mechanics of Light Elements at High Pressure. IV. A Model Free Energy for the Metallic Phase. *H. E. DeWitt and W. B. Hubbard*. **205**, 295, 31-B11 (1976)

The Ionization of Cloud and Intercloud Hydrogen by O and B Stars. *Bruce Elmergreen*. **205**, 405, 34-A8 (1976)

Jovian Sodium Plasma. *Aharon Eviatar, Yuri Mekler, and Ferdinand V. Coroniti*. **205**, 622, 36-C6 (1976)

Calculation of the Cross Section for C IV-H Charge Exchange: Significance for Interstellar X-Rays/Cosmic-Ray Particles. *R. J. Blint, W. D. Watson, and R. B. Christensen*. **205**, 634, 36-D2 (1976)

Dielectronic Recombination to Form Helium-like Ions. *Alan Burgess and A. S. Tworowski*. **205**, L105, 37-D4 (1976)

Abundances of Simple Oxygen-bearing Molecules and Ions in Interstellar Clouds. *A. E. Glassgold and William D. Langer*. **206**, 85, 43-G4 (1976)

Treatment of Atomic and Molecular Line Blanketing by Opacity Sampling. *Hollis R. Johnson and Brian M. Krupp*. **206**, 201, 45-B1 (1976)

Transport Properties of Dense Matter. *Elliott Flowers and Naoki Itoh*. **206**, 281, 45-C4 (1976)

Fine-Structure Excitation of Carbon by Atomic Hydrogen Impact. *Andrew W. Yau and A. Dalgarno*. **206**, 652, 51-D4 (1976)

The Excitation of Permitted Lines in Gaseous Nebulae. *Steven A. Grandi*. **206**, 658, 51-D10 (1976)

The Carbon Monoxide Abundance in Interstellar Clouds. *William Langer*. **206**, 699, 53-C2 (1976)

Neutral Helium Emission in Wolf-Rayet Envelopes. *William R. Oegerle and David Van Blerkom*. **206**, L50, 44-E5 (1976)

H_2 Recombination on Interstellar Grains. *Michael J. Barlow and Joseph Silk*. **207**, 131, 59-D6 (1976)

Energy Levels of Hydrogen in Magnetic Fields of Arbitrary Strength. *A. R. P. Rau and Larry Spruch*. **207**, 671, 66-E1 (1976)

Experimental Limits on the Velocities of Sodium Atoms Sputtered from Solid Surfaces by Hydrogen Ions. *John O. Stoner, Jr.*. **207**, L141, 67-F3 (1976)

The Broadening of the Calcium Resonance Line in a High-Temperature Helium Atmosphere. *R. D. Driver and*

Atomic Processes—Continued

- J. L. Snider. **208**, 518, 80-E7 (1976)
- Ionization Equilibrium of the Three Highest Stages of Ionization of the Elements Carbon to Argon at High Temperatures. B. V. Robouch and J. P. Rager. **208**, 609, 81-E5 (1976)
- Electron Impact Excitation Cross Sections for Complex Ions. III. Highly Charged Ions with Three Valence Electrons. Allen D. Parks and Douglas H. Sampson. **209**, 312, 91-C6 (1976)
- Cosmological Evidence against Time Variation of the Fundamental Atomic Constants. William A. Baum and Ralph Florentin-Nielsen. **209**, 319, 93-A3 (1976)
- Revised Classification of Mg II Levels between 59 and 63 eV. G. Mehlman, A. W. Weiss, and J. M. Esteve. **209**, 640, 96-D1 (1976)
- Model Galactic Coronae: Ionization Structure and Absorption-Line Spectra. Jon C. Weisheit and Lee A. Collins. **210**, 299, 107-B10 (1976)
- Radiation from a Hot, Thin Plasma from 1 to 250 Å. Takako Kato. **30**, 397, 8-A2 (1976) (Abstr. in **205**, 309, 31-C11)
- Diffusion in Stars: Ionization and Abundance Effects. Thierry Montmerle and Georges Michaud. **31**, 489, 19-D1 (1976) (Abstr. in **206**, 966, 56-B1)

Autoionization: see Atomic Processes**Black Holes**

- The Electromagnetic Background: Limitations on Models of Unseen Matter. David Eichler and Alan Solinger. **203**, 1, 1-A4 (1976)
- Polarization of X-Rays from Cygnus X-1: A Test of the Accretion Disk Model. Alan P. Lightman and Stuart L. Shapiro. **203**, 701, 10-E1 (1976)
- Interaction of Neutron Stars with Black Holes. R. M. Misra. **203**, 704, 10-E4 (1976)
- New Results from Long-Term Observations of Cygnus X-1. S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski. **203**, L63, 8-C2 (1976)
- A Two-Temperature Accretion Disk Model for Cygnus X-1: Structure and Spectrum. S. L. Shapiro, A. P. Lightman, and D. M. Eardley. **204**, 187, 15-B1 (1976)
- Black Holes in X-Ray Binaries: Marginal Existence and Rotation Reversals of Accretion Disks. Stuart L. Shapiro and Alan P. Lightman. **204**, 555, 20-E5 (1976)
- Optical Structure of the X-Ray Globular Cluster NGC 6624. Neta A. Bahcall. **204**, L83, 22-B10 (1976)
- A Higher Stability Limit for Neutron Stars. Richard L. Bowers, A. M. Gleeson, and R. Daryl Pedigo. **205**, 261, 30-G4 (1976)
- Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver. **205**, L127, 42-B6 (1976)
- Scattering Model for X-Ray Bursts: Massive Black Holes in Globular Clusters. J. Grindlay and H. Gursky. **205**, L131, 42-B10 (1976)
- Gamma Rays from Primordial Black Holes. Don N. Page and S. W. Hawking. **206**, 1, 43-A4 (1976)
- Some Cosmological Consequences of Primordial Black-Hole Evaporations. Bernard J. Carr. **206**, 8, 43-A11 (1976)
- An Optical Search for Ionized Hydrogen in Globular Clusters. Malcolm G. Smith, James E. Hesser, and Stephen J. Shawl. **206**, 66, 43-E13 (1976)
- The Effect of Radiation Pressure on Accretion Disks around Black Holes. Laura Maraschi, Cesare Reina, and Aldo Treves. **206**, 295, 46-B3 (1976)
- Relativistic Fluid Disks in Orbit around Kerr Black Holes. Leslie G. Fishbone and Vincent Moncrief. **207**, 962, 70-G10 (1976)
- Returning Radiation in Accretion Disks around Black Holes. Chris Cunningham. **208**, 534, 80-F11 (1976)
- Evidence for a Central Massive Object in the X-Ray Cluster

M15. Barry Newell, G. S. Da Costa, and John Norris. **208**, L55, 82-A10 (1976)

- A New Luminosity Limit for Spherical Accretion onto Compact X-Ray Sources. Jeremiah P. Ostriker, Richard McCray, Robert Weaver, and A. Yahil. **208**, L61, 82-B1 (1976)
- Flare from the Perseus Region in Hard X-Rays. F. Fuligni, D. Brini, W. Dusi, and F. Frontera. **208**, L111, 86-F10 (1976)
- Star Distribution around a Massive Black Hole in a Globular Cluster. J. N. Bahcall and R. A. Wolf. **209**, 214, 90-C1 (1976)
- The Tidal Disruption of Neutron Stars by Black Holes in Close Binaries. James M. Lattimer and David N. Schramm. **210**, 549, 109-G3 (1976)
- Pair Production in Intense Magnetic Fields. W. T. Zaumen. **210**, 776, 113-F1 (1976)

BL Lacertae Objects

- Photoelectric Magnitudes and Polarization Data for Possible BL Lacertae Objects. T. D. Kinman. **205**, 1, 28-A4 (1976)
- The Absorption-Line Spectrum of the BL Lacertae Object AO 0235+164. E. M. Burbidge, R. D. Caldwell, Harding E. Smith, J. Liebert, and H. Spinrad. **205**, L117, 42-A10 (1976)
- Radio and Optical Observations of the Radio Source OX 029. Eric R. Craine and John W. Warner. **206**, 359, 48-B10 (1976)
- An X-Ray Survey of BL Lacertae Objects. Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidsen, Keith O. Mason, and Peter W. Sanford. **207**, 359, 63-B6 (1976)
- Search for X-Ray Emission from BL Lacertae Objects and Nearby Seyfert Galaxies. M. P. Ulmer and S. S. Murray. **207**, 364, 63-B11 (1976)
- The Radio Brightness Distribution of Eight Markarian Galaxies. R. A. Sramek and H. M. Tovmassian. **207**, 725, 68-D5 (1976)
- A BL Lacertae Object near the Spiral Galaxy NGC 6503. Halton Arp, Jack W. Sulentic, A. G. Willis, and H. R. de Ruiter. **207**, L13, 62-B1 (1976)
- The BL Lacertae Object AP Librae in 1975. B. A. Peterson, A. W. Rodgers, E. J. Wampler, and M. J. Disney. **207**, L17, 62-B9 (1976)
- The Redshift of the BL Lacertae Object PKS 0548-322. R. A. E. Fosbury and M. J. Disney. **207**, L75, 67-A6 (1976)
- Optical Polarization Models of Quasi-stellar Objects and BL Lacertae Objects. Kenneth H. Nordsieck. **209**, 653, 98-A4 (1976)
- 3C 66 A: A BL Lacertae Object in a Distant, Rich Cluster of Galaxies. H. R. Butcher, A. Oemler, Jr., S. Tapia, and M. Tarenghi. **209**, L11, 92-A10 (1976)
- The Polarization of BL Lacertae at Visible and Infrared Wavelengths. R. F. Knacke, R. W. Capps, and M. Johns. **210**, L69, 111-B8 (1976)

Cataclysmic Stars: see Stars: Novae; Stars: U Geminorum**Ca II Emission**

- Absolute Magnitudes of Stars from Widths of Chromospheric Ca II Emission Lines. O. C. Wilson. **205**, 823, 39-F12 (1976)

Celestial Mechanics**Clusters: Associations**

- The OBN and OBC Stars. Nolan R. Walborn. **205**, 419, 34-B8 (1976)
- Infrared Observations of Monoceros R2. S. Beckwith, N. J. Evans II, E. E. Becklin, and G. Neugebauer. **208**, 390, 79-B9 (1976)
- The Origin of OB Associations and Extended Regions of High-Energy Activity in the Galaxy through Supernova Cascade Processes. Hakki B. Ögelman and Stephen P. Maran. **209**, 124, 89-C6 (1976)
- The Value of R in Monoceros. David G. Turner. **210**, 65, 103-F13 (1976)
- Spectrophotometric Studies of Young Stars. I. The Cepheus IV Association. Martin Cohen and Leonard V. Kuhi. **210**, 365, 107-G8 (1976)
- Observations of Southern Emission-Line Stars. Karl G.

- Henize*. **30**, 491, 9-B1 (1976) (Abstr. in **205**, 310, 31-C12)
- Clusters: Globular**
- On Estimating the Unprojected Luminosity Density within a Cluster of Galaxies. *William H. Press*. **203**, 14, 1-B2 (1976)
- Metal-rich Globular Clusters in the Galaxy. III. The "X-Ray" Globular Cluster NGC 6441. *James E. Hesser and F. D. A. Hartwick*. **203**, 97, 2-A1 (1976)
- The Formation of the Nuclei of Galaxies. II. The Local Group. *Scott D. Tremaine*. **203**, 345, 5-E9 (1976)
- The Semistellar Nucleus of M33. *Sidney van den Bergh*. **203**, 764, 11-C2 (1976)
- Metal-rich Globular Clusters in the Galaxy. IV. A Color-Magnitude Diagram for NGC 6304. *James E. Hesser and F. D. A. Hartwick*. **203**, L13, 2-B10 (1976)
- Mass Loss in Globular-Cluster Red Giants. *Judith G. Cohen*. **203**, L127, 11-E10 (1976)
- The Masses of Globular Clusters. II. Velocity Dispersions and Mass-to-Light Ratios. *Garth Illingworth*. **204**, 73, 13-F13 (1976)
- Optical Structure of the X-Ray Globular Cluster NGC 6624. *Neta A. Bahcall*. **204**, L83, 22-B10 (1976)
- On a Spherical Star System with a Collapsed Core. *E. N. Glass and Bahram Mashhoon*. **205**, 570, 35-F9 (1976)
- Globular Clusters in the Hydra I Cluster of Galaxies. *Malcolm G. Smith and Daniel W. Weedman*. **205**, 709, 38-E2 (1976)
- Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. *J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver*. **205**, L127, 42-B6 (1976)
- Scattering Model for X-Ray Bursts: Massive Black Holes in Globular Clusters. *J. Grindlay and H. Gursky*. **205**, L131, 42-B10 (1976)
- An Optical Search for Ionized Hydrogen in Globular Clusters. *Malcolm G. Smith, James E. Hesser, and Stephen J. Shawl*. **206**, 66, 43-E13 (1976)
- The Structure and Mass Function of the Globular Cluster M3. *G. S. Da Costa and K. C. Freeman*. **206**, 128, 44-C9 (1976)
- Improved Position for the X-Ray Source Associated with the Globular Cluster NGC 6441. *J. E. Grindlay, H. Schnopper, E. Schreier, H. Gursky, and D. R. Parsignault*. **206**, L23, 47-B11 (1976)
- Enhanced Abundances of Nitrogen and s-Process Elements in Red Giant Stars in Omega Centauri. *R. J. Dickens and R. A. Bell*. **207**, 506, 64-F14 (1976)
- The Space Distribution of Globular Clusters in M87. *William E. Harris and Malcolm G. Smith*. **207**, 1036, 71-F10 (1976)
- Uhuru Observations of a Transient X-Ray Source Associated with the Globular Cluster NGC 6440. *W. Forman, C. Jones, and H. Tananbaum*. **207**, L25, 62-C6 (1976)
- Preliminary Photometry of the X-Ray Globular Cluster NGC 6624. *M. H. Liller and W. Liller*. **207**, L109, 67-C11 (1976)
- Cyanogen Strengths of Globular Cluster Post-Main-Sequence Stars. *James E. Hesser, F. D. A. Hartwick, and Robert D. McClure*. **207**, L113, 67-D2 (1976)
- Uhuru Observations of an X-Ray Burst at High Galactic Latitude Centered on the X-Ray Globular Cluster NGC 1851. *W. Forman and C. Jones*. **207**, L177, 72-C11 (1976)
- Optical Structure of the X-Ray Globular Clusters NGC 6440 and NGC 6441. *Neta A. Bahcall and Mark A. Hausman*. **207**, L181, 72-D1 (1976)
- Search for X-Ray Emission from Globular Clusters Using Uhuru Data. *M. P. Ulmer, S. S. Murray, H. Gursky, and J. N. Bahcall*. **208**, 47, 74-D11 (1976)
- The Giant Branch of Omega Centauri. I. Abundance Variations Due to Mixing. *M. S. Bessell and John Norris*. **208**, 369, 79-A1 (1976)
- Radio Sources in the Field of Globular Clusters. *Hugh M. Johnson*. **208**, 706, 83-G6 (1976)
- The Reticulum System: An Analog to the Draco Dwarf Galaxy near the Large Magellanic Cloud. *Serge Demers and William E. Kunkel*. **208**, 932, 86-C10 (1976)
- Evidence for a Central Massive Object in the X-Ray Cluster M15. *Barry Newell, G. S. Da Costa, and John Norris*. **208**, L55, 82-A10 (1976)
- A New Luminosity Limit for Spherical Accretion onto Compact X-Ray Sources. *Jeremiah P. Ostriker, Richard McCray, Robert Weaver, and A. Yahil*. **208**, L61, 82-B1 (1976)
- Star Distribution around a Massive Black Hole in a Globular Cluster. *J. N. Bahcall and R. A. Wolf*. **209**, 214, 90-C1 (1976)
- Tidal Disruption of Clusters. *Edgar Knobloch*. **209**, 411, 94-A2 (1976)
- The Chemical Evolution of the Galactic Halo. *F. D. A. Hartwick*. **209**, 418, 94-A9 (1976)
- The Age and Chemical Composition of the LMC Cluster NGC 2209. *S. C. B. Gascoigne, John Norris, M. S. Bessell, A. R. Hyland, and N. Visvanathan*. **209**, L25, 92-B11 (1976)
- Uhuru Observations of 4U 1608-52: The "Steady" X-Ray Source Associated with the X-Ray Burst Source Norma. *H. Tananbaum, Lola J. Chaisson, W. Forman, C. Jones, and T. A. Matilsky*. **209**, L125, 101-E13 (1976)
- The Giant Branch of ω Centauri. I. Abundance Variations Due to Mixing: Erratum. *M. S. Bessell and John Norris*. **210**, 618, 110-E10 (1976) (Orig. paper in **208**, 369, 79-A1)
- Why Globular Clusters Are So Spherical. *Stuart L. Shapiro and Alan B. Marchant*. **210**, 757, 113-D9 (1976)
- The Infrared Source near the Rapid-Burst X-Ray Source MXB 1730-335. *D. E. Kleinmann, S. G. Kleinmann, and E. L. Wright*. **210**, L83, 111-C10 (1976)
- The Masses of Globular Clusters. I. Surface Brightness Distributions and Star Counts. *Garth Illingworth and Wendy Illingworth*. **30**, 227, 5-A2 (1976) (Abstr. in **204**, 312, 16-D9)
- New Color-Magnitude Diagrams for Four Globular Clusters. *William E. Harris, René Racine, and James de Roux*. **31**, 13, 11-B1 (1976) (Abstr. in **205**, 655, 36-E10)
- Instrumental Color-Magnitude Diagrams for 24 Large Magellanic Cloud Star Clusters. *James E. Hesser, F. D. A. Hartwick, and Patricio Ugarte P.* **32**, 283, 26-F1 (1976) (Abstr. in **208**, 272, 76-G10)
- Clusters: Open**
- (R-I) Colors of Cepheids and Yellow Supergiants in Open Clusters. *Edward G. Schmidt*. **203**, 466, 7-A5 (1976)
- The Dynamic Instability of Isothermal Relativistic Star Clusters. *K. G. Soffern and E. D. Fackerell*. **203**, 477, 7-B5 (1976)
- One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. *M. W. Werner, I. Gatley, D. A. Harper, E. E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson*. **204**, 420, 19-A13 (1976)
- Evolutionary Problems of Cepheids and Other Giants Investigated with New Radiative Opacities. *T. Richard Carson and Richard Stothers*. **204**, 461, 19-E1 (1976)
- A Study of Be Stars in Clusters. *R. Schild and W. Romanishin*. **204**, 493, 19-G6 (1976)
- The Binary Frequency of IC 4665. *David Crampton, Graham Hill, and W. A. Fisher*. **204**, 502, 20 A1 (1976)
- The Luminosity of the Very Red Supergiant near the Cluster TR 27. *Catherine L. Imhoff and Philip C. Keenan*. **205**, 455, 34-E6 (1976)
- The Frequency of Peculiar A and Metallic-Line Stars in Open Clusters. *Mark R. Hartoog*. **205**, 807, 39-E6 (1976)
- Luminosity Functions and the Evolution of Low-Mass Population I Giants. *Beatrice M. Tinsley and James E. Gunn*. **206**, 525, 50-A1 (1976)
- The 10.8 Day Cepheid TW Normae and the Cluster Lynga Number 6. *Sidney van den Bergh and Gretchen L. H. Harris*. **208**, 767, 84-D12 (1976)
- The Cepheid SV Crucis and the Cluster Ruprecht 97. *Sidney van den Bergh, Elizabeth Herbst, Gretchen L. H. Harris, and William Herbst*. **208**, 770, 84-E7 (1976)

Clusters: Open—Continued

On the Extinction Law in the Carina Nebula. *William Herbst*. **208**, 923, 86-C1 (1976)

The Cepheid CS Velorum and the Cluster Ruprecht 79. *Gretchen L. H. Harris and Sidney van den Bergh*. **209**, 130, 89-C12 (1976)

Effects of Heavy-Element Abundances on the Color-Magnitude Diagrams of Young Clusters in the Galaxy and the Magellanic Clouds. *Gretchen L. H. Harris and Robert G. Deupree*. **209**, 402, 93-G6 (1976)

Tidal Disruption of Clusters. *Edgar Knobloch*. **209**, 411, 94-A2 (1976)

Evolved Stars in Open Clusters. *Gretchen L. Harris*. **30**, 451, 8-F1 (1976) (Abstr. in **205**, 309, 31-C11)

Instrumental Color-Magnitude Diagrams for 24 Large Magellanic Cloud Star Clusters. *James E. Hesser, F. D. A. Hartwick, and Patricio Ugarte P.* **32**, 283, 26-F1 (1976) (Abstr. in **208**, 272, 76-G10)

Cluster-Type Variables: see Stars: RR Lyrae**Comets**

Molecular Ions in Comet Tails. *S. Wyckoff and P. A. Wehinger*. **204**, 604, 21-A12 (1976)

On the Ionization and Excitation of H_2O^+ in Comet Kohoutek (1973f). *S. Wyckoff and P. A. Wehinger*. **204**, 616, 21-B9 (1976)

Sun and Comets as Sources in an External Flow. *Max K. Wallis and Murray Dryer*. **205**, 895, 40-F1 (1976)

Lyman-Alpha Observations of Comet Kohoutek 1973 XII with Copernicus. *J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller*. **209**, 302, 91-B10 (1976)

Carbon Production in Comet West 1975n. *P. D. Feldman and W. H. Brune*. **209**, L45, 92-D2 (1976)

Radio Observations of OH in Comet West 1975n. *L. E. Snyder, J. C. Webber, R. M. Crutcher, and G. W. Swenson, Jr.* **209**, L49, 92-D6 (1976)

The Production Rate and Possible Origin of O (1D) in Comet Bennett 1970 II. *A. Delsemme and M. R. Combi*. **209**, L149, 101-G11 (1976)

Production Rate and Origin of H_2O^+ in Comet Bennett 1970 II. *A. H. Delsemme and M. R. Combi*. **209**, L153, 102-A1 (1976)

Plasma Irregularities in the Comet's Tail. *L. C. Lee*. **210**, 254, 105-F11 (1976)

Convection

Stellar Evolution at High Mass with Semiconvective Mixing According to the Schwarzschild Criterion. *Richard Stothers and Chao-wen Chin*. **204**, 472, 19-E12 (1976)

Effects of Convective Overshoot on Lithium Depletion in Main-Sequence Stars. *Joe M. Straus, J. B. Blake, and David N. Schramm*. **204**, 481, 19-F7 (1976)

On the Constancy along Cylinders of the Angular Velocity in the Solar Convection Zone. *B. R. Durney*. **204**, 589, 20-G11 (1976)

Excitation of Pulsations in the CNO Ionization Zone of Luminous Stars. *Richard Stothers*. **204**, 853, 25-C8 (1976)

Nonlinear Convective Motion in Shallow Convective Envelopes. *Robert G. Deupree*. **205**, 286, 31-B2 (1976)

Convective Instability in a Compressible Atmosphere. II. *D. O. Gough, D. R. Moore, E. A. Spiegel, and N. O. Weiss*. **206**, 536, 50-A12 (1976)

The Role of Turbulent Pressure in Mixing-Length Convection. *R. F. Stellingwerf*. **206**, 543, 50-B5 (1976)

Stellar Convection Theory. I. The Anelastic Modal Equations. *Jean Latour, Edward A. Spiegel, Juri Toomre, and Jean-Paul Zahn*. **207**, 233, 60-E1 (1976)

Stellar Convection Theory. II. Single-Mode Study of the Second Convection Zone in an A-Type Star. *Juri Toomre, Jean-Paul Zahn, Jean Latour, and Edward A. Spiegel*. **207**, 545, 65-C1 (1976)

A Nonlocal Mixing-Length Theory of Convection for Use in Numerical Calculations. *Roger K. Ulrich*. **207**, 564, 65-D6 (1976)

Further Adventures of a Thermally Pulsing Star. *Icko Iben, Jr.* **208**, 165, 75-F11 (1976)

On Magnetic Buoyancy in the Convection Zone. *Wasaburo Unno and Elizabeth Ribes*. **208**, 222, 76-C13 (1976)

The Giant Branch of Omega Centauri. I. Abundance Variations Due to Mixing. *M. S. Bessell and John Norris*. **208**, 369, 79-A1 (1976)

A Suggestion for the Alternating Amplitudes of RV Tauri Variables. *Robert G. Deupree and Stephen W. Hodson*. **208**, 426, 79-E10 (1976)

A Criterion for the Maximum Extent of Flash-driven Convection. *Keith H. Despain and John M. Scalo*. **208**, 789, 84-G1 (1976)

Penetrative Convection in a Layer of Fluid Heated from Within. *Joe M. Straus*. **209**, 179, 89-G7 (1976)

The Giant Branch of ω Centauri. I. Abundance Variations Due to Mixing: Erratum. *M. S. Bessell and John Norris*. **210**, 618, 110-E10 (1976) (Orig. paper in **208**, 369, 79-A1)

About the Proper Choice of the Characteristic Length in the Convection Theory. *Erika Böhm-Vitense and George Driver Nelson*. **210**, 741, 113-C7 (1976)

Convective White-Dwarf Envelope Model Grids for H-, He-, and C-rich Compositions. *G. Fontaine and H. M. Van Horn*. **31**, 467, 19-B1 (1976) (Abstr. in **206**, 965, 56-A14)

Horizontal-Branch Evolution with Semiconvection. II. Theoretical Sequences. *Allen V. Sweigart and Peter G. Gross*. **32**, 367, 29-A2 (1976) (Abstr. in **209**, 650, 96-D11)

Cool Stars: see Stars: Late-Type**Cosmic Background Radiation**

The Electromagnetic Background: Limitations on Models of Unseen Matter. *David Eichler and Alan Solinger*. **203**, 1, 1-A4 (1976)

A Measurement of Fluctuations in the X-Ray Background by Uhuru. *Daniel A. Schwartz, Stephen S. Murray, and Herbert Gursky*. **204**, 315, 18-A4 (1976)

An Observation of the Diffuse Soft X-Ray/Extreme-Ultraviolet Background. *Webster Cash, Rober Malina, and Robert Stern*. **204**, L7, 17-A8 (1976)

Cosmological Turbulence Reexamined. *A. M. Anile, L. Danese, G. De Zotti, and S. Motta*. **205**, L59, 37-A6 (1976)

Perturbations of the General Robertson-Walker Universes and Angular Variations of the Cosmic Blackbody Radiation. *A. M. Anile and S. Motta*. **207**, 685, 68-A4 (1976)

Dirac Cosmologies and the Microwave Background. *V. N. Mansfield*. **210**, L137, 115-B7 (1976)

Cosmic Rays: Abundances

Consistency of Cosmic-Ray Composition, Acceleration Mechanism and Supernova Models. *Kem L. Hainebach, Eric B. Norman, and David N. Schramm*. **203**, 245, 3-F1 (1976)

Anomaly in the Quiet-Time Helium Spectrum at 1 MeV per Nucleon. *G. Gloeckler, D. Hovestadt, B. Klecker, O. Vollmer, and C. Y. Fan*. **204**, 920, 26-A6 (1976)

Cosmic-Ray Positron and Negatron Spectra between 20 and 800 MeV Measure in 1974. *R. C. Hartman and C. J. Pellerin*. **204**, 927, 26-B1 (1976)

Photonuclear Interactions of Ultrahigh-Energy Cosmic Rays and Their Astrophysical Consequences. *J. L. Puget, F. W. Stecker, and J. H. Bredekamp*. **205**, 638, 36-D6 (1976)

Isotopic and Elemental Composition of the Anomalous Low-Energy Cosmic-Ray Fluxes. *R. A. Mewaldt, E. C. Stone, S. B. Vidor, and R. E. Vogt*. **205**, 931, 41-A9 (1976)

The Isotopic Composition of Cosmic Rays with $5 \leq Z \leq 26$. *A. J. Fisher, F. A. Hagen, R. C. Maehl, J. F. Ormes, and J. F. Arens*. **205**, 938, 41-B3 (1976)

Secondary Cosmic-Ray e^{\pm} from 1 to 100 GeV in the Upper Atmosphere and Interstellar Space, and Interpretation of a Recent e^+ Flux Measurement. *Charles D. Orth and Andrew Buffington*. **206**, 312, 46-C7 (1976)

The Isotopic Composition of Hydrogen and Helium in Low-Energy Cosmic Rays. *R. A. Mewaldt, E. C. Stone, and R. E. Vogt*. **206**, 616, 51-A1 (1976)

- Cassiopeia A, Faint Supernovae, and Heavy-Element Ejection by Supernovae. *Roger A. Chevalier*. **208**, 826, 85-B10 (1976)
- Abundances of $Z > 52$ Nuclei in Galactic Cosmic Rays: Long-Term Averages Based on Studies of Pallasites. *O. Otgonsuren, V. P. Pereygin, S. G. Stetsenko, N. N. Gavrilova, C. Fiéni, and P. Pellas*. **210**, 258, 105-G1 (1976)
- Cosmic Rays: General**
- The Electromagnetic Background: Limitations on Models of Unseen Matter. *David Eichler and Alan Solinger*. **203**, 1, 1-A4 (1976)
- Further Studies of Ionization in Interstellar Clouds. *L. M. Hobbs*. **203**, 143, 2-E1 (1976)
- The Interplanetary Acceleration of Energetic Nucleons. *F. B. McDonald, B. J. Teegarden, J. H. Trainor, T. T. von Rosenvinge, and W. R. Webber*. **203**, L149, 11-G2 (1976)
- Multiple Ionization by Low-Energy Cosmic Rays and the Abundance of Highly Ionized Interstellar Atoms. *William D. Watson*. **204**, 47, 13-E1 (1976)
- A Nonlinear Theory of Cosmic-Ray Pitch-Angle Diffusion in Homogeneous Magnetostatic Turbulence. *Melvyn L. Goldstein*. **204**, 900, 25-F13 (1976)
- Anomaly in the Quiet-Time Helium Spectrum at 1 MeV per Nucleon. *G. Gloeckler, D. Hovestadt, B. Klecker, O. Vollmer, and C. Y. Fan*. **204**, 920, 26-A6 (1976)
- Cosmic-Ray Positron and Negatron Spectra between 20 and 800 MeV Measure in 1974. *R. C. Hartman and C. J. Pellerin*. **204**, 927, 26-B1 (1976)
- Calculation of the Cross Section for C IV-H Charge Exchange: Significance for Interstellar X-Rays/Cosmic-Ray Particles. *R. J. Blint, W. D. Watson, and R. B. Christensen*. **205**, 634, 36-D2 (1976)
- Photonuclear Interactions of Ultrahigh-Energy Cosmic Rays and Their Astrophysical Consequences. *J. L. Puget, F. W. Stecker, and J. H. Bredekamp*. **205**, 638, 36-D6 (1976)
- The Effect of Adiabatic Focusing upon Charged-Particle Propagation in Random Magnetic Fields. *James A. Earl*. **205**, 900, 40-F6 (1976)
- Cosmic-Ray Spallative Origin of the Rare Odd-odd Nuclei, Consistent with Light Element Production. *Kem L. Haubeck, David N. Schramm, and J. B. Blake*. **205**, 920, 40-G12 (1976)
- The Scattering of Cosmic Rays by Magnetic Bubbles. *R. F. Flewelling and F. V. Coroniti*. **205**, L135, 42-B13 (1976)
- Non-diffusive Propagation of Cosmic Rays in the Solar System and in Extragalactic Radio Sources. *James A. Earl*. **206**, 301, 46-B9 (1976)
- Secondary Cosmic-Ray e^+ from 1 to 100 GeV in the Upper Atmosphere and Interstellar Space, and Interpretation of a Recent e^+ Flux Measurement. *Charles D. Orth and Andrew Buffington*. **206**, 312, 46-C7 (1976)
- Solar Modulation and a Galactic Origin for the Anomalous Component Observed in Low-Energy Cosmic Rays. *L. A. Fisk*. **206**, 333, 46-E1 (1976)
- The Structure of the Galactic Disk and Its Implications for Gamma-Ray Astronomy. *B. Fuchs, R. Schlickeiser, and K. O. Thielheim*. **206**, 589, 50-F1 (1976)
- Galactic Cosmic-Ray Intensity 0.99 to 5.26 Astronomical Units from the Sun. *Michelle F. Thomsen and James A. Van Allen*. **206**, 599, 50-F11 (1976)
- Production of Galactic X-Rays Following Charge-Exchange by Cosmic-Ray Nuclei. *William D. Watson*. **206**, 842, 54-F7 (1976)
- Distribution of Gas, Magnetic Fields, and Cosmic Rays in the Galaxy. *J. Paul, M. Cassé, and C. J. Cesarsky*. **207**, 62, 58-E12 (1976)
- Cosmic-Ray Acceleration and the Radio Evolution of Cassiopeia A. *Roger A. Chevalier, John W. Robertson, and John S. Scott*. **207**, 450, 64-B5 (1976)
- Upper Limits to the Quiet-Time Solar Neutron Flux from 10 to 100 MeV. *Shin Moon, George M. Simnett, and R. Stephen White*. **207**, 630, 66-B1 (1976)
- A Theoretical Analysis of the Semiannual Component in the Heliolatitude Dependence of High-Energy Galactic Cosmic Rays. *Giovanni E. Perona and Ester Antonucci*. **207**, 989, 71-B9 (1976)
- Significance of Medium-Energy Gamma-Ray Astronomy in the Study of Cosmic Rays. *C. E. Fichtel, D. A. Kniffen, D. J. Thompson, G. F. Bignami, and C. Y. Cheung*. **208**, 211, 76-C2 (1976)
- On the Physical Interpretation of the Cosmic-Ray Transport Equations. *J. R. Jokipii and E. N. Parker*. **208**, 220, 76-C11 (1976)
- Conditions for "Storage" of Energetic Particles in the Solar Corona. *Donat G. Wentzel*. **208**, 595, 81-D5 (1976)
- Cloud Acceleration by Cosmic Rays in the Vicinity of Compact Luminous Objects. *Jean A. Eilek and Lawrence J. Caroff*. **208**, 887, 85-G2 (1976)
- Gamma-Ray Production by the Inverse Compton Process in Interstellar Space. *P. G. Shukla and J. Paul*. **208**, 893, 85-G8 (1976)
- Consequences of a Lifetime Greater than 10^7 Years for Galactic Cosmic Rays. *J. R. Jokipii*. **208**, 900, 86-A1 (1976)
- The Pulsar Contribution to the Galactic Gamma-Ray Emission. *J. C. Higdon and R. E. Lingenfelter*. **208**, L107, 86-F6 (1976)
- Quiet-Time Increases of Low-Energy Electrons: The Jovian Origin. *Jacques L'Heureux and Peter Meyer*. **209**, 955, 101-B4 (1976)
- Abundances of $Z > 52$ Nuclei in Galactic Cosmic Rays: Long-Term Averages Based on Studies of Pallasites. *O. Otgonsuren, V. P. Pereygin, S. G. Stetsenko, N. N. Gavrilova, C. Fiéni, and P. Pellas*. **210**, 258, 105-G1 (1976)
- Cosmic-Ray Gradients from Pioneer-10 and Pioneer-11. *W. I. Axford, W. Fillius, L. J. Gleeson, and W.-H. Ip*. **210**, 603, 110-D9 (1976)
- Evidence for Interplanetary Acceleration of Nucleons in Corotating Interaction Regions. *C. W. Barnes and J. A. Simpson*. **210**, L91, 111-D4 (1976)
- Cosmology**
- The Electromagnetic Background: Limitations on Models of Unseen Matter. *David Eichler and Alan Solinger*. **203**, 1, 1-A4 (1976)
- The Hubble Diagram for Nuclear Magnitudes. *Daniel Weedman*. **203**, 6, 1-A9 (1976)
- Is the Local Supercluster a Physical Association? *J. N. Bahcall and P. C. Joss*. **203**, 23, 1-B11 (1976)
- Evolutionary Synthesis of the Stellar Population in Elliptical Galaxies. I. Ingredients, Broad-Band Colors, and Infrared Features. *Beatrice M. Tinsley and James E. Gunn*. **203**, 52, 1-D12 (1976)
- The Dynamics of the Intergalactic Medium in the Vicinity of Clusters of Galaxies. *Susan M. Lea*. **203**, 569, 9-B3 (1976)
- Chemical Composition of H II Regions in the Small Magellanic Cloud and the Pregalactic Helium Abundance. *Manuel Peimbert and Silvia Torres-Peimbert*. **203**, 581, 9-C1 (1976)
- Dynamics of Primordial Inhomogeneities in Model Universes. *E. P. Liang*. **204**, 235, 15-E8 (1976)
- A Class of Bianchi Type VI Cosmological Model with Electromagnetic Field. *K. A. Dunn and B. O. J. Tupper*. **204**, 322, 18-A11 (1976)
- The Growth of Correlations in an Expanding Universe and the Clustering of Galaxies. *S. Michael Fall and William C. Saslaw*. **204**, 631, 23-A4 (1976)
- The Universe as a "Non-Ideal Gas" of Galaxies. *A. Yahil*. **204**, L59, 22-A2 (1976)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift-Magnitude Relation Derived from Nearby Groups and Sc Galaxies. *G. de Vaucouleurs*. **205**, 13, 28-B3 (1976)
- Exact Evolution of Photons in an Anisotropic Cosmology with Scattering. *William H. Press*. **205**, 311, 33-A4 (1976)
- The Peculiar Velocity Field in the Local Supercluster. *P. J. E.*

Cosmology—Continued

- Peebles. **205**, 318, 33-A11 (1976)
- The Log N -Log S Curve for 3CR Radio Galaxies and the Problem of Identifying Faint Radio Galaxies. *G. R. Burbidge and J. V. Narlikar*. **205**, 329, 33-B8 (1976)
- Inhomogeneities in the Early Universe. *V. Canuto*. **205**, 659, 38-A4 (1976)
- Multiple Image Probabilities for a Spheroidal Gravitational Lens. *R. R. Bourassa and R. Kantowski*. **205**, 674, 38-B5 (1976)
- The Extension of the Hubble Diagram. I. New Redshifts and BVR Photometry of Remote Cluster Galaxies, and an Improved Richness Correction. *Allan Sandage, Jerome Kristian, and James A. Westphal*. **205**, 688, 38-C5 (1976)
- Globular Clusters in the Hydra I Cluster of Galaxies. *Malcolm G. Smith and Daniel W. Weedman*. **205**, 709, 38-E2 (1976)
- A Cosmic Virial Theorem. *P. J. E. Peebles*. **205**, L109, 42-A2 (1976)
- Some Cosmological Consequences of Primordial Black-Hole Evaporations. *Bernard J. Carr*. **206**, 8, 43-A11 (1976)
- Big-Bang Nucleosynthesis with Nonzero Lepton Numbers. *A. Yahil and G. Beaudet*. **206**, 26, 43-C1 (1976)
- The Coma Supercluster: Analysis of Zwicky-Herzog Cluster 16 in Field 158. *Guido Chincarini and Herbert J. Rood*. **206**, 30, 43-C5 (1976)
- Conditions for Galaxy Formation from Adiabatic Fluctuations. *S. A. Bonometto and F. Lucchin*. **206**, 391, 48-E1 (1976)
- A Matter and Radiation Filled Universe: Consequences of the Astronomical Observations. *Ekkehard Nowotny*. **206**, 402, 48-E12 (1976)
- Theoretical Frameworks for Testing Relativistic Gravity. V. Post-Newtonian Limit of Rosen's Theory. *David L. Lee, Carlton M. Caves, Wei-Tou Ni, and Clifford M. Will*. **206**, 555, 50-C3 (1976)
- The Arrow of Time. *David Layzer*. **206**, 559, 50-C7 (1976)
- PKS 0116+082 and 3C 330: Two Distant Cluster Radio Galaxies. *Hyron Spinrad, James Liebert, Harding E. Smith, and Richard Hunstead*. **206**, L79, 52-A6 (1976)
- A New Cosmological Test for q_0 . *Daniel A. Schwartz*. **206**, L95, 52-C1 (1976)
- A Survey for Emission-Line Galaxies and Quasars. III. A List of Nine New Optically Selected QSOs with $2.5 < z < 3.1$. *Malcolm G. Smith*. **206**, L125, 56-C5 (1976)
- On the Correlation between Color and Absolute Magnitude in First Ranked Cluster Galaxies. *Philippe Crane*. **206**, L133, 56-D1 (1976)
- The Optical Appearance of Model Primeval Galaxies. *David L. Meier*. **207**, 343, 63-A4 (1976)
- Perturbations of the General Robertson-Walker Universes and Angular Variations of the Cosmic Blackbody Radiation. *A. M. Anile and S. Motta*. **207**, 685, 68-A4 (1976)
- Effects of a Rotation of the Universe on the Number Counts of Radio Sources: Gödel's Universe. *A. J. Fennelly*. **207**, 693, 68-A12 (1976)
- The Universe as a Non-Ideal Gas of Galaxies; Erratum. *A. Yahil*. **207**, L217, 72-F13 (1976) (Orig. paper in **204**, L59, 22-A2)
- Negative-Mass Lagging Cores of the Big Bang. *Bonnie D. Miller*. **208**, 275, 78-A4 (1976)
- On the Reality of Periodicities in the Redshift Distribution of Emission-Line Objects. *Richard F. Green and Douglas O. Richstone*. **208**, 639, 83-A4 (1976)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift Magnitude Relation Derived from Nearby Groups and Sc Galaxies; Erratum. *G. de Vaucouleurs*. **208**, 958, 86-E7 (1976) (Orig. paper in **205**, 13, 28-B3)
- Apparent Luminosities in a Locally Inhomogeneous Universe. *Steven Weinberg*. **208**, L1, 77-A2 (1976)
- The Mean Luminosity and Mass Densities in the Universe. *J. Richard Gott III and Edwin L. Turner*. **209**, 1, 88-A4 (1976)
- Groups of Galaxies. II. The Luminosity Function. *Edwin L. Turner and J. Richard Gott III*. **209**, 6, 88-A9 (1976)
- Singularities in Universes with Negative Cosmological Constant. *Frank J. Tipler*. **209**, 12, 88-B2 (1976)
- Cosmological Evidence against Time Variation of the Fundamental Atomic Constants. *William A. Baum and Ralph Florentin-Nielsen*. **209**, 319, 93-A3 (1976)
- Observational Evidence against a Time Variation in Planck's Constant. *Jan-Erik Solheim, Thomas G. Barnes III, and Harlan J. Smith*. **209**, 330, 93-B1 (1976)
- Some Astrophysical Effects of the Time Variation of All Masses. *V. N. Mansfield and S. Malin*. **209**, 335, 93-B6 (1976)
- Type I Supernovae as Cosmological Clocks. *G. de Vaucouleurs and W. D. Pence*. **209**, 687, 98-C11 (1976)
- Dynamical Friction: The Hubble Diagram as a Cosmological Test. *James E. Gunn and Beatrice M. Tinsley*. **210**, 1, 103-A4 (1976)
- Steps toward the Hubble Constant. VII. Distances to NGC 2403, M101, and the Virgo Cluster Using 21 Centimeter Line Widths Compared with Optical Methods: The Global Value of H_0 . *Allan Sandage and G. A. Tammann*. **210**, 7, 103-A10 (1976)
- Comments on "The Composite Hubble Diagram". *S. L. O'Dell and D. H. Roberts*. **210**, 294, 107-B5 (1976)
- Dirac Cosmologies and the Microwave Background. *V. N. Mansfield*. **210**, L137, 115-B7 (1976)

Dense Matter

- Crust-breaking by Neutron Superfluids and the Vela Pulsar Glitches. *M. Ruderman*. **203**, 213, 3-C9 (1976)
- Interaction of Neutron Stars with Black Holes. *R. M. Misra*. **203**, 704, 10-E4 (1976)
- Variational Analysis of Rotating Neutron Stars. *Marek A. Abramowicz and Robert V. Wagoner*. **204**, 896, 25-F9 (1976)
- A Higher Stability Limit for Neutron Stars. *Richard L. Bowers, A. M. Gleeson, and R. Daryl Pedigo*. **205**, 261, 30-G4 (1976)
- Neutrino Opacities at High Temperatures and Densities; Erratum. *David L. Tubbs and David N. Schramm*. **205**, 308, 31-C10 (1976) (Orig. paper in **201**, 467, 82-C11)
- Transport Properties of Dense Matter. *Elliott Flowers and Naoki Itoh*. **206**, 281, 45-C4 (1976)
- Matter in Superstrong Magnetic Fields and the Structure of a Neutron Star's Surface. *W. Hillebrandt and E. Müller*. **207**, 589, 65-F3 (1976)
- Neutron Star Structure: Theory, Observation, and Speculation. *V. R. Pandharipande, D. Pines, and R. A. Smith*. **208**, 550, 80-G13 (1976)
- Dynamical Effects of Possible Solid Cores in Neutron Stars and Degenerate Dwarfs. *G. Baym, D. Q. Lamb, and F. K. Lamb*. **208**, 829, 85-D13 (1976)
- Superfluidity in Neutron Stars. II. After a Period Jump. *George Greenstein*. **208**, 836, 85-C6 (1976)
- Effects of Neutrino Degeneracy in Supernovae Models. *D. Q. Lamb and C. J. Pethick*. **209**, L77, 96-G8 (1976)
- Neutrino Pair Bremsstrahlung Including Neutral Current Effects. *Duane A. Dicus, Edward W. Kolb, David N. Schramm, and David L. Tubbs*. **210**, 481, 109-B3 (1976)

Deuterium

- Implications of the Presence of Deuterium in the Galactic Center. *Jean Audouze, James Lequeux, Hubert Reeves, and Laurent Vigroux*. **208**, L51, 82-A6 (1976)
- Radio Detection of Interstellar DCO^+ . *J. M. Hollis, L. E. Snyder, F. J. Lovas, and D. Buhl*. **209**, L83, 97-A1 (1976)
- Pair Production in Intense Magnetic Fields. *W. T. Zaumen*. **210**, 776, 113-F1 (1976)

Double Stars: see Stars: Binaries; Stars: Visual Multiples

Earth: Airglow

- Upper Limits to the Interstellar Radiation Field between 775 and 1050 Å. *Francesco Paresce and Stuart Bowyer*. **207**,

- 432, 64-A1 (1976)
- Earth: Atmosphere**
- Earth: Aurorae**
An Interpretation of Jupiter's Decametric Radiation and the Terrestrial Kilometric Radiation as Direct Amplified Gyroemission. *D. B. Melrose*. **207**, 651, 66-C8 (1976)
- Earth: General**
Search for Evidence of a Preferred Reference Frame. *Richard J. Warburton and John M. Goodkind*. **208**, 881, 85-F10 (1976)
- Editorials: see Notices**
- Elementary Particles**
Big-Bang Nucleosynthesis with Nonzero Lepton Numbers. *A. Yahil and G. Beaudet*. **206**, 26, 43-C1 (1976)
Pair Production in Intense Magnetic Fields. *W. T. Zaumen*. **210**, 776, 113-F1 (1976)
- Equation of State**
A Higher Stability Limit for Neutron Stars. *Richard L. Bowers, A. M. Gleeson, and R. Daryl Pedigo*. **205**, 261, 30-G4 (1976)
Statistical Mechanics of Light Elements at High Pressure. IV. A Model Free Energy for the Metallic Phase. *H. E. DeWitt and W. B. Hubbard*. **205**, 295, 31-B11 (1976)
Neutron Star Structure: Theory, Observation, and Speculation. *V. R. Pandharipande, D. Pines, and R. A. Smith*. **208**, 550, 80-G13 (1976)
- Equations: see Functions: Numerical Methods**
- Errata and Addenda**
Transfer of Line Radiation in Differentially Expanding Atmospheres. IV. The Two-Level Atom in Plane-parallel Geometry Solved by the Feautrier Method: Erratum. *P. D. Noerdlinger and G. B. Rybicki*. **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 651, 71-D5)
Observations of Helium in the Interplanetary/Interstellar Wind: The Solar Wake Effect: Erratum. *C. S. Weller and R. R. Meier*. **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 471, 68-F13)
Observations of Near-Infrared C₂ Bands in the Spectra of Carbon Stars: Erratum. *Daya P. Gilra*. **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 145, 51-E1)
The Triple-Alpha Rate, Screening Factors, and the Helium Flash: Erratum. *T. D. Tarbell and R. T. Rood*. **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 443, 56-E3)
Energy Spectrum of Hydrogen-like Atoms in a Strong Magnetic Field: Erratum. *G. L. Surmelian and R. F. O'Connell*. **204**, 311, 16-D8 (1976) (Orig. paper in **190**, 741, 37-D13)
Precise Positions of Radio Sources. II. Optical Measurements: Erratum. *Jerome Kristian and Allan Sandage*. **205**, 308, 31-C10 (1976) (Orig. paper in **162**, 391, 31-C10)
Neutrino Opacities at High Temperatures and Densities: Erratum. *David L. Tubbs and David N. Schramm*. **205**, 308, 31-C10 (1976) (Orig. paper in **201**, 467, 82-C11)
Sympathetic Stellar Flares and Electron Precipitation as Probes of Coronal Structure in Flare Stars: Erratum. *D. J. Mullan*. **206**, 672, 51-E10 (1976) (Orig. paper in **204**, 530, 20-C6)
Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths: Erratum. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom*. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L43, 4-F4)
MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport*. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
CO Observations of the Expanding Envelope of IRC +10216: Erratum. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and R. L. Brown*. **207**, 341, 61-E13 (1976) (Orig. paper in **204**, 408, 19-A1)
The Universe as a Non-Ideal Gas of Galaxies: Erratum. *A. Yahil*. **207**, L217, 72-F13 (1976) (Orig. paper in **204**, L59, 22-A2)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift Magnitude Relation Derived from Nearby Groups and Sc Galaxies: Erratum. G. de Vaucouleurs. **208**, 958, 86-E7 (1976) (Orig. paper in **205**, 13, 28-B3)**
- Proton Aurora on Io: Erratum. Carl B. Pilcher. **209**, 651, 96-D12 (1976) (Orig. paper in **207**, 646, 66-C3)**
- MK Morphology of a Group of Am Stars: Addendum. Helmut A. Abt and W. W. Morgan. **209**, 961, 101-B12 (1976) (Orig. paper in **205**, 446, 34-D9)**
- Supernovae in Binary Systems: Erratum. J. C. Wheeler, M. Lecar, and C. F. McKee. **209**, 961, 101-B12 (1976) (Orig. paper in **200**, 145, 64-E1)**
- Observations of Radio Sources with Variable Flux Density at 365 and 380 MHz: Erratum. William D. Cotton. **209**, L53, 92-D10 (1976) (Orig. paper in **204**, L63, 22-A6)**
- Mass Flow in the O7f Binary UW Canis Majoris. II.: Addendum. George E. McCluskey, Jr. and Yoji Kondo. **210**, 277, 106-A9 (1976) (Orig. paper in **208**, 760, 84-D7)**
- The Giant Branch of ω Centauri. I. Abundance Variations Due to Mixing: Erratum. M. S. Bessell and John Norris. **210**, 618, 110-E10 (1976) (Orig. paper in **208**, 369, 79-A1)**
- Comments on the Optical Counterpart of the X-Ray Source 3U 0352+30: Erratum. Thomas J. Moffett and Thomas G. Barnes III. **210**, L115, 111-F3 (1976) (Orig. paper in **207**, L185, 72-D7)**
- Excitation and Ionization: see Atomic Processes**
- Forbidden Lines**
Infrared Line Emission from the Orion Nebula: Detection of [S III] (18.71 μ) and [O III] (88.35 μ). *J. -P. Baluteau, E. Bussolotti, M. Anderegg, A. F. M. Moorwood, and N. Coron*. **210**, L45, 106-E1 (1976)
- Functions: Numerical Methods**
A Banach Space Analysis of the Chandrasekhar *H*-Equation. *R. L. Bowden and P. F. Zweifel*. **210**, 178, 105-A4 (1976)
- Fundamental Constants**
Cosmological Evidence against Time Variation of the Fundamental Atomic Constants. *William A. Baum and Ralph Florentin-Nielsen*. **209**, 319, 93-A3 (1976)
Observational Evidence against a Time Variation in Planck's Constant. *Jan-Erik Solheim, Thomas G. Barnes III, and Harlan J. Smith*. **209**, 330, 93-B1 (1976)
- f-Values: see Transition Probabilities**
- Galaxies: Clusters of**
The Hubble Diagram for Nuclear Magnitudes. *Daniel Weedman*. **203**, 6, 1-A9 (1976)
On Estimating the Unprojected Luminosity Density within a Cluster of Galaxies. *William H. Press*. **203**, 14, 1-B2 (1976)
Is the Local Supercluster a Physical Association? *J. N. Bahcall and P. C. Joss*. **203**, 23, 1-B11 (1976)
An Analytic Expression for the Luminosity Function for Galaxies. *P. Schechter*. **203**, 297, 5-B3 (1976)
Compact Radio Sources in the Directions of Rich Clusters of Galaxies. *Frazer N. Owen and Lawrence Rudnick*. **203**, 307, 5-B13 (1976)
Method for Determining Maximum-Likelihood Distance for Groups of Galaxies. *Paul Schechter and William H. Press*. **203**, 557, 9-A4 (1976)
The Dynamics of the Intergalactic Medium in the Vicinity of Clusters of Galaxies. *Susan M. Lea*. **203**, 569, 9-B3 (1976)
Head-Tail Radio Sources in Clusters of Galaxies. *Lawrence Rudnick and Frazer N. Owen*. **203**, L107, 11-D5 (1976)
Optical Properties of the Radio Source PKS 0123-01 (3C 40) in Abell 194. *S. M. Simkin*. **204**, 251, 15-F10 (1976)
Critique of Bell and Fort's Quasar Model. *Jeno M. Barnothy and George J. Corso*. **204**, 337, 18-B12 (1976)
The Growth of Correlations in an Expanding Universe and the Clustering of Galaxies. *S. Michael Fall and William C. Saslaw*. **204**, 631, 23-A4 (1976)

Galaxies: Clusters of—Continued

- Collisions of Galaxies in Dense Clusters. II. Dynamical Evolution of Cluster Galaxies. *Douglas Richstone*. **204**, 642, 23-B1 (1976)
- The Universe as a "Non-Ideal Gas" of Galaxies. *A. Yahil*. **204**, L59, 22-A2 (1976)
- The Absolute Magnitude of First Ranked Cluster Galaxies as a Function of Cluster Richness. *Allan Sandage*. **205**, 6, 28-A10 (1976)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift-Magnitude Relation Derived from Nearby Groups and Sc Galaxies. *G. de Vaucouleurs*. **205**, 13, 28-B3 (1976)
- The Peculiar Velocity Field in the Local Supercluster. *P. J. E. Peebles*. **205**, 318, 33-A11 (1976)
- Radial Velocities and Masses of Galaxies in Groups from 21-Centimeter Line Observations. *Herbert J. Rood and John R. Dickel*. **205**, 346, 33-C12 (1976)
- Corrected Ratios of Average Mass to Average Luminosity for Double Galaxies. *Herbert J. Rood*. **205**, 354, 33-D8 (1976)
- The Extension of the Hubble Diagram. I. New Redshifts and BVR Photometry of Remote Cluster Galaxies, and an Improved Richness Correction. *Allan Sandage, Jerome Kristian, and James A. Westphal*. **205**, 688, 38-C5 (1976)
- Direct Observations of the Large-Scale Distribution of Galaxies. *W. G. Tift and S. A. Gregory*. **205**, 696, 38-C13 (1976)
- Globular Clusters in the Hydra I Cluster of Galaxies. *Malcolm G. Smith and Daniel W. Weedman*. **205**, 709, 38-E2 (1976)
- Systematic Redshifts in the Outer Regions of the Coma Cluster. *Stephen A. Gregory and William G. Tift*. **205**, 716, 38-E7 (1976)
- The Problem of Spiral Galaxies and Satellite Radio Sources. *Halton Arp, Roland Carpenter, Samuel Gulkis, and Michael Klein*. **205**, 721, 38-E12 (1976)
- Radio Sources with Wide-Angle Tails in Abell Clusters of Galaxies. *Frazer N. Owen and Lawrence Rudnick*. **205**, L1, 32-A2 (1976)
- The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. *A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballantine, J. P. Doty, P. M. Downey, and W. H. G. Lewin*. **205**, L65, 37-A11 (1976)
- A Cosmic Virial Theorem. *P. J. E. Peebles*. **205**, L109, 42-A2 (1976)
- On the Use of Correlation Functions in Finding Physical Associations of Galaxies. *S. Michael Fall, Margaret J. Geller, Bernard J. T. Jones, and Simon D. M. White*. **205**, L121, 42-B1 (1976)
- The Coma Supercluster: Analysis of Zwicky-Herzog Cluster 16 in Field 158. *Guido Chincarini and Herbert J. Rood*. **206**, 30, 43-C5 (1976)
- Gross Optical Properties of the Coma Cluster. *Stephen A. Gregory and William G. Tift*. **206**, 934, 55-F9 (1976)
- Bright Galaxies in Rich Clusters: Test of a Statistical Model for Magnitude Distributions. *M. J. Geller and P. J. E. Peebles*. **206**, 939, 55-G1 (1976)
- A New Cosmological Test for q_0 . *Daniel A. Schwartz*. **206**, L95, 52-C1 (1976)
- Nearby Groups of Galaxy Clusters. *Herbert J. Rood*. **207**, 16, 58-B8 (1976)
- The Origin of X-Ray Sources in Clusters of Galaxies. *J. I. Katz*. **207**, 25, 58-C3 (1976)
- Observations of Supernovae: 1975a in NGC 2207 and 1975b in the Perseus Cluster. *Robert P. Kirshner, H. C. Arp, and J. R. Dunlap*. **207**, 44, 58-D9 (1976)
- The Virgo Clusters. I. The Equality of Mean Redshifts of E and S Galaxies near the Cluster Center. *Allan Sandage and G. A. Tammann*. **207**, L1, 62-A2 (1976)
- The Cluster of Galaxies Abell 2255. *M. Tarenghi and John S. Scott*. **207**, L9, 62-A10 (1976)
- The Universe as a Non-Ideal Gas of Galaxies: Erratum. *A. Yahil*. **207**, L217, 72-F13 (1976) (Orig. paper in **204**, L59, 22-A2)
- The X-Ray Structure of the Perseus Cluster of Galaxies. *R. S. Wolff, R. J. Mitchell, P. A. Charles, and J. L. Culhane*. **208**, 1, 74-A4 (1976)
- Galaxy Correlations as a Function of Morphological Type. *Marc Davis and Margaret J. Geller*. **208**, 13, 74-B3 (1976)
- Binary Galaxies. I. A Well-defined Statistical Sample. *Edwin L. Turner*. **208**, 20, 74-B11 (1976)
- Velocities of Galaxies in Cluster A1367. *Donald H. Gudehus*. **208**, 267, 76-G4 (1976)
- Binary Galaxies. II. Dynamics and Mass-to-Light Ratios. *Edwin L. Turner*. **208**, 304, 78-C4 (1976)
- Accretion by Galaxy Clusters and the Relationship between X-Ray Luminosity and Velocity Dispersion. *Joseph Silk*. **208**, 646, 83-A11 (1976)
- Planetary Nebulae in Local Group Galaxies. III. Radial Velocity Observations of H II Regions in the M32 Field. *Holland C. Ford and David C. Jenner*. **208**, 683, 83-E10 (1976)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift Magnitude Relation Derived from Nearby Groups and Sc Galaxies: Erratum. *G. de Vaucouleurs*. **208**, 958, 86-E7 (1976) (Orig. paper in **205**, 13, 28-B3)
- Spatial Distribution of Neutral Hydrogen in Virgo Cluster Galaxies of Early Type. *N. Krumm and E. E. Salpeter*. **208**, L7, 77-A7 (1976)
- Upper Limits to the Mass of the Virgo Cluster of Galaxies. *F. D. A. Hartwick*. **208**, L13, 77-A13 (1976)
- An X-Ray Redshift Measure for Clusters of Galaxies Up to $z \geq 1$. *Elihu Boldt*. **208**, L15, 77-B1 (1976)
- Redshift Anomaly in Associations of Clusters of Galaxies? *L. Nottale*. **208**, L103, 86-F2 (1976)
- Groups of Galaxies. II. The Luminosity Function. *Edwin L. Turner and J. Richard Gott III*. **209**, 6, 88-A9 (1976)
- Statistical Simulations of Clusters of Galaxies. *Yoram Avni and Neta A. Bahcall*. **209**, 16, 88-B6 (1976)
- The Angular Momentum Properties of Galaxies in Rich Clusters. *Laird A. Thompson*. **209**, 22, 88-B12 (1976)
- Photometry of the "Seyfert Sextet" (VV 115) and the Anonymous Galaxy 1558.2+2100. *Donald H. Martins and Guido Chincarini*. **209**, 372, 93-E2 (1976)
- On the Significance of the Luminosities of First-ranked Members of Sparse Groups of Galaxies. *Paul L. Schechter and P. J. E. Peebles*. **209**, 670, 98-B8 (1976)
- Soft X-Ray Morphology of the Virgo, Coma, and Perseus Clusters of Galaxies. *Roger Malina, Michael Lampton, and Stuart Bowyer*. **209**, 678, 98-C2 (1976)
- 3C 66 A: A BL Lacertae Object in a Distant, Rich Cluster of Galaxies. *H. R. Butcher, A. Oemler, Jr., S. Tapia, and M. Tarenghi*. **209**, L11, 92-A10 (1976)
- Radio-Optical Candidates for the High-Latitude X-Ray Sources 3U 1555+27 and 3U 1809+50. *Neta A. Bahcall, D. E. Harris, and R. G. Strom*. **209**, L17, 92-B3 (1976)
- A Soft X-Ray Map of the Perseus Cluster of Galaxies. *Webster Cash, Roger F. Malina, and Richard S. Wolff*. **209**, L111, 101-D7 (1976)
- Dynamical Friction: The Hubble Diagram as a Cosmological Test. *James E. Gunn and Beatrice M. Tinsley*. **210**, 1, 103-A4 (1976)
- Steps toward the Hubble Constant. VII. Distances to NGC 2403, M101, and the Virgo Cluster Using 21 Centimeter Line Widths Compared with Optical Methods: The Global Value of H_0 . *Allan Sandage and G. A. Tammann*. **210**, 7, 103-A10 (1976)
- Image Processing of Galaxy Photographs. *Halton Arp and Jean Lorre*. **210**, 58, 103-E9 (1976)
- Energy Spectra of X-Ray Clusters of Galaxies. *Yoram Avni*. **210**, 642, 112-C1 (1976)
- The Dynamical Interaction between Galaxies and Intracuster Gas in Clusters of Galaxies. *Susan M. Lea and David S. De Young*. **210**, 647, 112-C6 (1976)
- Velocity Dispersions for X-Ray Clusters of Galaxies. *S. M. Faber and A. Dressler*. **210**, L65, 111-B5 (1976)

- Groups of Galaxies. I. A Catalog. *Edwin L. Turner and Richard Gott III*. **32**, 409, 29-E1 (1976) (Abstr. in **209**, 650, 96-D11)
- Galaxies: Evolution**
- Surface Brightness and Evolution of Galaxies. *Vahé Petrosian*. **209**, L1, 92-A2 (1976)
- Surface Brightness Parameters as Tests of Galactic Evolution (Correct version appearing 1976 December 1). *Beatrice M. Tinsley*. **209**, L7, 92-A7 (1976)
- Surface Brightness Parameters as Tests of Galactic Evolution. *Beatrice M. Tinsley*. **210**, L49, 111-A2 (1976)
- Galaxies: Formation**
- Have Primeval Galaxies Been Detected? *David L. Meier*. **203**, L103, 11-D2 (1976)
- Inhomogeneities in the Early Universe. *V. Canuto*. **205**, 659, 38-A4 (1976)
- Conditions for Galaxy Formation from Adiabatic Fluctuations. *S. A. Bonometto and F. Lucchin*. **206**, 391, 48-E1 (1976)
- The Evolution of Massive Collapsing Gas Clouds. *Sabastian von Hoerner and William C. Saslaw*. **206**, 917, 55-E6 (1976)
- The Optical Appearance of Model Primeval Galaxies. *David L. Meier*. **207**, 343, 63-A4 (1976)
- Predominance of Two-armed Spirals. *R. H. Miller*. **207**, 408, 63-F2 (1976)
- Galactic Evolution Models and the Rhenium-187/Osmium-187 Chronometer: A Greater Age for the Galaxy. *Kem L. Hainebach and David N. Schramm*. **207**, L79, 67-A9 (1976)
- Ring Galaxies. I. *J. C. Theys and E. A. Spiegel*. **208**, 605, 83-B1 (1976)
- The Angular Momentum Properties of Galaxies in Rich Clusters. *Laird A. Thompson*. **209**, 22, 88-B12 (1976)
- Gas Response to Oval Distortions in Disk Galaxies. *R. H. Sanders and J. M. Huntley*. **209**, 53, 88-E4 (1976)
- On the Significance of the Luminosities of First-ranked Members of Sparse Groups of Galaxies. *Paul L. Schechter and P. J. E. Peebles*. **209**, 670, 98-B8 (1976)
- The Structure of Elliptical cD Galaxies. *Augustus Oemler, Jr.*. **209**, 693, 98-D3 (1976)
- Galaxies: General**
- In Situ* Particle Acceleration and Physical Conditions in Radio Tail Galaxies. *A. G. Pacholczyk and John S. Scott*. **203**, 313, 5-C6 (1976)
- The Radio Spectra of Markarian Galaxies. *Gabriel Kojan, Richard A. Sramek, Dale F. Dickinson, H. Tovmassian, and C. R. Purton*. **203**, 323, 5-D1 (1976)
- The Variable Radio Nucleus of M81. *Patrick C. Crane, Thomas S. Giuffrida, and John B. Carlson*. **203**, L113, 11-D11 (1976)
- Dynamics of Primordial Inhomogeneities in Model Universes. *E. P. Liang*. **204**, 235, 15-E8 (1976)
- H I in Early-Type Galaxies. II. Mass Loss and Galactic Winds. *S. M. Faber and J. S. Gallagher*. **204**, 365, 18-D12 (1976)
- Observations of Radio Sources with Variable Flux Density at 365 and 380 MHz. *William D. Cotton*. **204**, L63, 22-A6 (1976)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift-Magnitude Relation Derived from Nearby Groups and Sc Galaxies. *G. de Vaucouleurs*. **205**, 13, 28-B3 (1976)
- The Thermal Effects of H₂ Molecules in Rotating and Collapsing Spheroidal Gas Clouds. *John B. Hutchins*. **205**, 103, 29-B2 (1976)
- The Log N-Log S Curve for 3CR Radio Galaxies and the Problem of Identifying Faint Radio Galaxies. *G. R. Burbidge and J. V. Narlikar*. **205**, 329, 33-B8 (1976)
- Discrete States of Redshift and Galaxy Dynamics. I. Internal Motions in Single Galaxies. *William G. Tifft*. **206**, 38, 43-C13 (1976)
- PKS 0116+082 and 3C 330: Two Distant Cluster Radio Galaxies. *Hyron Spinrad, James Liebert, Harding E. Smith, and Richard Hunstead*. **206**, L79, 52-A6 (1976)
- Radio-Frequency Limits to the Abundance of Intergalactic Neutral Hydrogen. *Kenneth R. Lang*. **206**, L91, 52-B11 (1976)
- On the Correlation between Color and Absolute Magnitude in First Ranked Cluster Galaxies. *Philippe Crane*. **206**, L133, 56-D1 (1976)
- Effects of a Rotation of the Universe on the Number Counts of Radio Sources: Gödel's Universe. *A. J. Fennelly*. **207**, 693, 68-A12 (1976)
- On Schmidt's V_m Estimator and Other Estimators of Luminosity Functions. *James E. Felten*. **207**, 700, 68-B5 (1976)
- The X-Ray Structure of the Perseus Cluster of Galaxies. *R. S. Wolff, R. J. Mitchell, P. A. Charles, and J. L. Culhane*. **208**, 1, 74-A4 (1976)
- Galaxy Correlations as a Function of Morphological Type. *Marc Davis and Margaret J. Geller*. **208**, 13, 74-B3 (1976)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift Magnitude Relation Derived from Nearby Groups and Sc Galaxies: Erratum. *G. de Vaucouleurs*. **208**, 958, 86-E7 (1976) (Orig. paper in **205**, 13, 28-B3)
- A Possible Manifestation of Unseen Matter. *David Eichler*. **208**, L5, 77-A5 (1976)
- Composition Gradients in Spiral Galaxies: A Consistency Check on the Density-Wave Theory. *E. B. Jensen, K. M. Strom, and S. E. Strom*. **209**, 748, 99-A1 (1976)
- Observations of Radio Sources with Variable Flux Density at 365 and 380 MHz: Erratum. *William D. Cotton*. **209**, L53, 92-D10 (1976) (Orig. paper in **204**, L63, 22-A6)
- Comments on "The Composite Hubble Diagram". *S. L. O'Dell and D. H. Roberts*. **210**, 294, 107-B5 (1976)
- Photography of 3CR Radio Source Fields: Three New Optical Identifications. *Harding E. Smith, E. Margaret Burbidge, and Hyron Spinrad*. **210**, 627, 112-A4 (1976)
- Overabundances of Sodium and the Heavy Isotopes of Magnesium in Strong-lined Elliptical Galaxies. *Ruth C. Peterson*. **210**, L123, 115-A8 (1976)
- Spectroscopy of 206 QSO Candidates and Radio Galaxies. *D. Wills and Beverley J. Wills*. **31**, 143, 13-B1 (1976) (Abstr. in **205**, 658, 36-E13)
- Accurate Optical Positions of Bright Galaxies. *L. L. Dressel and J. J. Condon*. **31**, 187, 14-D1 (1976) (Abstr. in **205**, 342, 46-E10)
- Radio Emission in Peculiar Galaxies. *Jack W. Sulentic*. **32**, 171, 25-A2 (1976) (Abstr. in **208**, 956, 86-E5)
- Emission-Line Galaxies and Quasars. II. The Classification Systems and List N1, Declination $\leq -27^{\circ}5$, Galactic Latitude $\geq +20^{\circ}$. *Malcolm G. Smith, Cecilia Aguirre, and Mario Zemelman*. **32**, 217, 25-F1 (1976) (Abstr. in **208**, 955, 86-E4)
- The University of Texas Low-Frequency Variable Radio Source Survey. *William D. Cotton*. **32**, 467, 30-E1 (1976) (Abstr. in **209**, 648, 96-D9)
- Galaxies: Individual** (arranged by Messier number, NGC number, Radio Galaxies, and other designation)
- By Messier Number*
- Optical and Millimeter-Wave Observations of the M8 Region. *Charles J. Lada, T. R. Gull, C. A. Gottlieb, and E. W. Gottlieb*. **203**, 159, 2-F2 (1976)
- The H and K Lines of Ca II in the Nucleus and Bulge of M31. *Donald C. Morton and C. David Andereck*. **205**, 356, 33-D10 (1976)
- Velocity Dispersions in Galaxies. V. The Nuclei of M31 and M32. *Donald C. Morton and Bruce G. Elmergreen*. **205**, 63, 28-E13 (1976)
- A Dynamical Model for the Central Region of M31. *Maria Teresa Ruiz*. **207**, 382, 63-D3 (1976)
- A Computer Model of the Origin of H I Radial Velocity Asymmetries in M31. *Gene G. Byrd*. **208**, 688, 83-F1 (1976)
- The Semistellar Nucleus of M33. *Sidney van den Bergh*. **203**, 764, 11-C2 (1976)
- Aperture Synthesis of Neutral Hydrogen in the Galaxy M33.

Galaxies: Individual—Continued

D. H. Rogstad, M. C. H. Wright, and I. A. Lockhart. **204**, 703, 23-F8 (1976)

Kinematics of the Gas in the Nuclear Disk of M81. *Jean W. Goad.* **32**, 89, 23-A1 (1976) (Abstr. in **208**, 271, 76-G9)

A Reinvestigation of the Scattering Halo of M82 Based on Polarimetric and Isophotal Maps. *Gary D. Schmidt, J. R. P. Angel, and R. H. Cromwell.* **206**, 888, 55-C1 (1976)

The Space Distribution of Globular Clusters in M87. *William E. Harris and Malcolm G. Smith.* **207**, 1036, 71-F10 (1976)

By NGC Number

Gas Motions in the Center of the Galaxy NGC 253 from H I Line Interferometry. *S. T. Gottesman, R. Lucas, L. Weliachew, and M. C. H. Wright.* **204**, 699, 23-F4 (1976)

H II Regions in NGC 628. II. Analysis of the Spatial Distribution. *R. C. Kennicutt and P. W. Hodge.* **207**, 36, 58-D1 (1976)

Some Comparisons of Theoretical Supernova Light Curves with Supernova 1969f (Type II) in NGC 1058. *W. David Arnett and Sydney W. Falk.* **203**, 335, 5-D13 (1976)

8–13 Micron Spectrophotometry of NGC 1068. *D. E. Kleinmann, F. C. Gillett, and E. L. Wright.* **208**, 42, 74-D6 (1976)

[NGC 1098] Profiles of the [O III] Nebular Lines in Two Bright Seyfert Galaxies. *J. W. Glaspey, J. A. Eilek, G. G. Fahlman, and J. R. Auman.* **203**, 335, 5-D13 (1976)

Observations of Supernovae: 1975a in NGC 2207 and 1975b in the Perseus Cluster. *Robert P. Kirshner, H. C. Arp, and J. R. Dunlap.* **207**, 44, 58-D9 (1976)

Motions of the Stars and the Excited Gas in the Barred Spiral Galaxy NGC 3351. *Charles J. Peterson, Vera C. Rubin, W. Kent Ford, Jr., and Norbert Thonnard.* **208**, 662, 83-C3 (1976)

A Dynamical Study of NGC 4027. *John H. Christiansen and William H. Jefferys.* **205**, 52, 28-E2 (1976)

[NGC 4151] Profiles of the [O III] Nebular Lines in Two Bright Seyfert Galaxies. *J. W. Glaspey, J. A. Eilek, G. G. Fahlman, and J. R. Auman.* **203**, 335, 5-D13 (1976)

Infrared Observations of NGC 5128. *G. L. Grasdalen and R. R. Joyce.* **208**, 317, 78-D3 (1976)

The Post-eruptive Galaxy NGC 5128 = Centaurus A. *Sidney van den Bergh.* **208**, 673, 83-D6 (1976)

[NGC 5128] Detection of Nuclear Gamma Rays from Centaurus A. *R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes.* **210**, 631, 112-B4 (1976)

Type I Supernovae. II. The Spectrum of SN 1972e in NGC 5253, 250 Days after the Explosion. *Charlotte Gordon.* **207**, 860, 69-G2 (1976)

A BL Lacertae Object near the Spiral Galaxy NGC 6503. *Halton Arp, Jack W. Sulentic, A. G. Willis, and H. R. de Ruiter.* **207**, L13, 62-B1 (1976)

1749+70.1/NGC 6503: A New Quasar/Galaxy Pair. *Patrick C. Crane and R. M. Price.* **207**, L21, 62-C1 (1976)

Radio Galaxies

The Post-eruptive Galaxy NGC 5128 = Centaurus A. *Sidney van den Bergh.* **208**, 673, 83-D6 (1976)

Cygnus A at 8.5 Millimeter Wavelength. *O. Hachenberg, E. Fürst, W. Harth, P. Steffen, W. Wilson, and W. Hirth.* **206**, L19, 47-B6 (1976)

The Optical Structure of Cygnus A. *Sidney van den Bergh.* **210**, L63, 111-B1 (1976)

The Distant N Galaxy 3C 318. *Hyron Spinrad and Harding E. Smith.* **206**, 355, 48-B4 (1976)

3.7 and 11.1 Centimeter Observations of the Radio Galaxy 3C 386. *R. H. Becker and M. R. Kundu.* **207**, 29, 58-C7 (1976)

The Structure and Spectrum of Nebulosity Associated with the QSO 4C 37.43. *Alan Stockton.* **205**, L113, 42-A5 (1976)

By Other Designation

Photometry of the "Seyfert Sextet" (VV 115) and the Anonymous Galaxy 1558.2+2100. *Donald H. Martins and Guido Chincarini.* **209**, 372, 93-E2 (1976)

The Masses of the Anomalous C₄-pehids in the Draco System.

Robert Zinn and Leonard Searle. **209**, 734, 98-G2 (1976)

Surface Photometry of the Spiral Galaxy IC 2233 and the Existence of Massive Halos. *J. S. Gallagher and H. S. Hudson.* **209**, 389, 93-F8 (1976)

Markarian 376: A Seyfert Galaxy with Strong Fe II Emission. *D. E. Osterbrock.* **203**, 329, 5-D7 (1976)

[Rosette Nebula] Deep Ice Absorption in a Peculiar Infrared Source. *Martin Cohen.* **203**, 169, 2-G3 (1976)

Optical Observations of WRA 977. *D. J. Bord, D. E. Mook, L. Petro, and W. A. Hiltner.* **203**, 689, 10-D2 (1976)

Galaxies: Intergalactic Medium

The Dynamics of the Intergalactic Medium in the Vicinity of Clusters of Galaxies. *Susan M. Lea.* **203**, 569, 9-B3 (1976)

Head-Tail Radio Sources in Clusters of Galaxies. *Lawrence Rudnick and Frazer N. Owen.* **203**, L107, 11-D5 (1976)

Radio Sources with Wide-Angle Tails in Abell Clusters of Galaxies. *Frazer N. Owen and Lawrence Rudnick.* **205**, L1, 32-A2 (1976)

Radio-Frequency Limits to the Abundance of Intergalactic Neutral Hydrogen. *Kenneth R. Lang.* **206**, L91, 52-B11 (1976)

The Cluster of Galaxies Abell 2255. *M. Tarengi and John S. Scott.* **207**, L9, 62-A10 (1976)

The Absorption Spectrum of the Quasar PHL 1222. *K. E. Williams and R. J. Weymann.* **207**, L143, 72-A2 (1976)

A Possible Manifestation of Unseen Matter. *David Eichler.* **208**, L5, 77-A5 (1976)

Neutral Hydrogen in the Direction of the Small Magellanic Cloud and the Limits on an Extragalactic Soft X-Ray Flux. *D. McCammon, S. S. Meyer, W. T. Sanders, and F. O. Williamson.* **209**, 46, 88-D9 (1976)

Extragalactic Diffuse Neutral Hydrogen Clouds: Probes of a Hot Intergalactic Medium. *Lennox L. Cowie and Christopher F. McKee.* **209**, L105, 101-D2 (1976)

Image Processing of Galaxy Photographs. *Halton Arp and Jean Lorre.* **210**, 58, 103-E9 (1976)

The Dynamical Interaction between Galaxies and Intracuster Gas in Clusters of Galaxies. *Susan M. Lea and David S. De Young.* **210**, 647, 112-C6 (1976)

Galaxies: Internal Motions

Accretion by the Galaxy: Effects of Radiative Cooling on the Flow Structure and Infall Rate. *Donald P. Cox and Barham W. Smith.* **203**, 361, 5-F11 (1976)

The Observational Effects of Explosions in the Nuclei of Spiral Galaxies. *R. H. Sanders and T. M. Bania.* **204**, 341, 18-C3 (1976)

Velocity Dispersions and Mass-to-Light Ratios for Elliptical Galaxies. *S. M. Faber and Robert E. Jackson.* **204**, 668, 28-C13 (1976)

A Dynamical Study of NGC 4027. *John H. Christiansen and William H. Jefferys.* **205**, 52, 28-E2 (1976)

Velocity Dispersions in Galaxies. V. The Nuclei of M31 and M32. *Donald C. Morton and Bruce G. Elmegreen.* **205**, 63, 28-E13 (1976)

Explosions in Galactic Nuclei and the Formation of Double Radio Sources. *Robert H. Sanders.* **205**, 335, 33-C1 (1976)

The H and K Lines of Ca II in the Nucleus and Bulge of M31. *Donald C. Morton and C. David Andereck.* **205**, 356, 33-D10 (1976)

Dynamics of Flat Galaxies. II. Biorthonormal Surface Density-Potential Pairs for Finite Disks. *Agris J. Kalnajs.* **205**, 745, 38-G11 (1976)

Dynamics of Flat Galaxies. III. Equilibrium Models. *Agris J. Kalnajs.* **205**, 751, 39-A3 (1976)

Dynamics of CO Molecular Clouds in the Galaxy. *Frank N. Bash and William L. Peters.* **205**, 786, 39-C11 (1976)

On the Nonexpansion of the Galaxy. *Michael W. Ovenden and John Byl.* **206**, 57, 43-E4 (1976)

Gross Optical Properties of the Coma Cluster. *Stephen A. Gregory and William G. Tifft.* **206**, 934, 55-F9 (1976)

An Approximate Dynamical Model for Spheroidal Stellar Systems. *Maria Teresa Ruiz and M. Schwarzschild.* **207**,

- 376, 63-C11 (1976)
- Ejection from the Spiral Galaxy NGC 1097. *Halton Arp*. **207**, L147, 72-A6 (1976)
- Dynamical Response of the Interstellar Medium to Explosions at the Galactic Center. *Richard J. Defouw*. **208**, 52, 74-E2 (1976)
- Motions of the Stars and the Excited Gas in the Barred Spiral Galaxy NGC 3351. *Charles J. Peterson, Vera C. Rubin, W. Kent Ford, Jr., and Norbert Thonnard*. **208**, 662, 83-C3 (1976)
- Planetary Nebulae in Local Group Galaxies. III. Radial Velocity Observations of H II Regions in the M32 Field. *Holland C. Ford and David C. Jenner*. **208**, 683, 83-E10 (1976)
- A Computer Model of the Origin of H I Radial Velocity Asymmetries in M31. *Gene G. Byrd*. **208**, 688, 83-F1 (1976)
- On the Interpretation of Ring Galaxies: The Binary Ring System II Hz 4. *Roger Lynds and Alar Toomre*. **209**, 382, 93-E12 (1976)
- Kinematics of the Gas in the Nuclear Disk of M81. *Jean W. Goad*. **32**, 89, 23-A1 (1976) (Abstr. in **208**, 271, 76-G9)
- Galaxies: Magellanic Clouds**
- The Effect of Dynamical Friction on the Orbits of the Magellanic Clouds. *Scott D. Tremaine*. **203**, 72, 1-F4 (1976)
- On the Abundances of Helium, Nitrogen, and Oxygen in the Planetary Nebulae of the Magellanic Clouds. *Patrick S. Osmer*. **203**, 352, 5-F2 (1976)
- Chemical Composition of H II Regions in the Small Magellanic Cloud and the Pregalactic Helium Abundance. *Manuel Peimbert and Silvia Torres-Peimbert*. **203**, 581, 9-C1 (1976)
- Carbon Stars in the Large Magellanic Cloud. *Dennis R. Crabtree, Harvey B. Richer, and B. E. Westerlund*. **203**, L81, 8-D10 (1976)
- Nucleosynthesis and Star Formation of the Galaxy and Magellanic Clouds. *Gordon L. Olson and Jose H. Peña*. **205**, 527, 35-C8 (1976)
- Soft X-Rays from the Large Magellanic Cloud: Implications on the Origin of the Diffuse X-Ray Background. *K. S. Long, P. C. Agrawal, and G. P. Garmire*. **206**, 411, 48-F7 (1976)
- Discovery of X-Ray Pulsations in SMC X-1. *R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman*. **206**, L25, 47-B13 (1976)
- Supernova Ejecta in the Large Magellanic Cloud. *I. J. Danziger and M. Dennefeld*. **207**, 394, 63-E1 (1976)
- The Reticulum System: An Analog to the Draco Dwarf Galaxy near the Large Magellanic Cloud. *Serge Demers and William E. Kunkel*. **208**, 932, 86-C10 (1976)
- Neutral Hydrogen in the Direction of the Small Magellanic Cloud and the Limits on an Extragalactic Soft X-Ray Flux. *D. McCammon, S. S. Meyer, W. T. Sanders, and F. O. Williamson*. **209**, 46, 88-D9 (1976)
- Optical Emission from Shock Waves. I. Abundances in N49. *Michael A. Dopita*. **209**, 395, 93-F13 (1976)
- Effects of Heavy-Element Abundances on the Color-Magnitude Diagrams of Young Clusters in the Galaxy and the Magellanic Clouds. *Gretchen L. H. Harris and Robert G. Deupree*. **209**, 402, 93-G6 (1976)
- The Age and Chemical Composition of the LMC Cluster NGC 2209. *S. C. B. Gascoigne, John Norris, M. S. Bessell, A. R. Hyland, and N. Visvanathan*. **209**, L25, 92-B11 (1976)
- Emission-Line Stars in the Large Magellanic Cloud: Spectroscopy and Infrared Photometry. *D. A. Allen and I. S. Glass*. **210**, 666, 112-D11 (1976)
- Evolved Stars in Open Clusters. *Gretchen L. Harris*. **30**, 451, 8-F1 (1976) (Abstr. in **205**, 309, 31-C11)
- Instrumental Color-Magnitude Diagrams for 24 Large Magellanic Cloud Star Clusters. *James E. Hesser, F. D. A. Hartwick, and Patricio Ugarte P.* **32**, 283, 26-F1 (1976) (Abstr. in **208**, 272, 76-G10)
- Galaxies: Milky Way**
- Accretion by the Galaxy: Effects of Radiative Cooling on the Flow Structure and Infall Rate. *Donald P. Cox and Barham W. Smith*. **203**, 361, 5-F11 (1976)
- Spectral and Spatial Resolution of the 12.8 Micron Ne II Emission from the Galactic Center. *E. R. Wollman, T. R. Geballe, J. H. Lacy, C. H. Townes, and D. M. Rank*. **205**, L5, 32-A7 (1976)
- Late-Type Giants and Supergiants in the Galactic Center. *G. Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams*. **205**, L139, 42-C3 (1976)
- Prediction of the Diffuse Far-Infrared Flux from the Galactic Plane. *G. G. Fazio and F. W. Stecker*. **207**, L49, 62-E2 (1976)
- Galactic Evolution Models and the Rhenium-187/Osmium-187 Chronometer: A Greater Age for the Galaxy. *Kem L. Hainebach and David N. Schramm*. **207**, L79, 67-A9 (1976)
- 2-4 Micron Spectrophotometric Observations of the Galactic Center. *B. T. Soifer, R. W. Russell, and K. M. Merrill*. **207**, L83, 67-B1 (1976)
- Observations with a High-Resolution Balloon-borne Gamma-Ray Telescope. *S. P. McKechnie, K. E. Mount, and D. Ramsden*. **207**, L151, 72-B2 (1976)
- Magnetohydrodynamic Turbulence in Disk Plasmas and Magnetic Field Fluctuations in the Galaxy. *Setsuo Ichimaru*. **208**, 701, 83-G1 (1976)
- Implications of the Presence of Deuterium in the Galactic Center. *Jean Audouze, James Lequeux, Hubert Reeves, and Laurent Vigroux*. **208**, L51, 82-A6 (1976)
- Effects of Heavy-Element Abundances on the Color-Magnitude Diagrams of Young Clusters in the Galaxy and the Magellanic Clouds. *Gretchen L. H. Harris and Robert G. Deupree*. **209**, 402, 93-G6 (1976)
- A Survey of Ionized Hydrogen in the Plane of the Galaxy. *Felix J. Lockman*. **209**, 429, 94-B6 (1976)
- The 1.4-2.7 Micron Spectrum of the Point Source at the Galactic Center. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III*. **209**, L115, 101-E¹ (1976)
- The Value of *R* in Monoceros. *David G. Turner*. **210**, 65, 103-F13 (1976)
- Metal Abundances of RR Lyrae Variables in Selected Galactic Star Fields. I. Baade's Window. *Dennis Butler, Duane Carbon, and Robert P. Kraft*. **210**, 120, 104-D1 (1976)
- Galaxies: Nuclei**
- The Hubble Diagram for Nuclear Magnitudes. *Daniel Weedman*. **203**, 6, 1-A9 (1976)
- Profiles of the [O III] Nebular Lines in Two Bright Seyfert Galaxies. *J. W. Glaspey, J. A. Eilek, G. G. Fahlman, and J. R. Auman*. **203**, 335, 5-D13 (1976)
- The Formation of the Nuclei of Galaxies. II. The Local Group. *Scott D. Tremaine*. **203**, 345, 5-E9 (1976)
- The Semistellar Nucleus of M33. *Sidney van den Bergh*. **203**, 764, 11-C2 (1976)
- Cool Stellar Populations in E/S0 Galaxies and a Possible Outburst in M87. *Robert W. O'Connell*. **203**, L1, 4-C2 (1976)
- 3C 303: A Source with Unusual Radio and Optical Properties. *P. P. Kronberg*. **203**, L47, 8-B2 (1976)
- The Variable Radio Nucleus of M81. *Patrick C. Crane, Thomas S. Giuffrida, and John B. Carlson*. **203**, L113, 11-D11 (1976)
- The Observational Effects of Explosions in the Nuclei of Spiral Galaxies. *R. H. Sanders and T. M. Bania*. **204**, 341, 18-C3 (1976)
- Gas Motions in the Center of the Galaxy NGC 253 from H I Line Interferometry. *S. T. Gottesman, R. Lucas, L. Weliachew, and M. C. H. Wright*. **204**, 699, 23-F4 (1976)
- Gravitational-Wave Bursts from the Nuclei of Distant Galaxies and Quasars: Proposal for Detection Using Doppler Tracking of Interplanetary Spacecraft. *Kip S. Thorne and Vladimir B. Braginsky*. **204**, L1, 17-A2 (1976)

Galaxies: Nuclei—Continued

- The Origin of Ultraviolet and Infrared Continuum Radiation from Seyfert Galaxies. *Wayne A. Stein and Daniel W. Weedman*. **205**, 44, 28-D8 (1976)
- Velocity Dispersions in Galaxies. V. The Nuclei of M31 and M32. *Donald C. Morton and Bruce G. Elmergreen*. **205**, 63, 28-E13 (1976)
- On the Number of Planetary Nebulae in our Galaxy. *D. Alloin, C. Cruz-González, and M. Peimbert*. **205**, 74, 28-G1 (1976)
- Explosions in Galactic Nuclei and the Formation of Double Radio Sources. *Robert H. Sanders*. **205**, 335, 33-C1 (1976)
- The H and K Lines of Ca II in the Nucleus and Bulge of M31. *Donald C. Morton and C. David Andereck*. **205**, 356, 33-D10 (1976)
- Color Gradients in the Nuclear Region of M31. *Trinh X. Thuan and J. B. Oke*. **205**, 360, 33-E3 (1976)
- Spectral and Spatial Resolution of the 12.8 Micron Ne II Emission from the Galactic Center. *E. R. Wollman, T. R. Geballe, J. H. Lacy, C. H. Townes, and D. M. Rank*. **205**, L5, 32-A7 (1976)
- High-Resolution Far-Infrared Observations of the Galactic Center. *Paul M. Harvey, Murray F. Campbell, and William F. Hoffman*. **205**, L69, 37-B1 (1976)
- Late-Type Giants and Supergiants in the Galactic Center. *G. Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams*. **205**, L139, 42-C3 (1976)
- Spectrophotometric Observations of N Galaxies at Large Redshift: PKS 0353+027, 3C 99, 3C 467. *Harding E. Smith, Hyron Spinrad, and Richard Hunstead*. **206**, 345, 48-A4 (1976)
- Galaxy Spectral Synthesis. I. Stellar Populations in the Nuclei of Giant Ellipticals. *Robert W. O'Connell*. **206**, 370, 48-C7 (1976)
- Nonrelativistic Compton Scattering and Models of Quasars. *J. I. Katz*. **206**, 910, 55-D13 (1976)
- The Evolution of Massive Collapsing Gas Clouds. *Sabastian von Hoerner and William C. Saslaw*. **206**, 917, 55-E6 (1976)
- The Sizes of the Nuclei of Galaxies at 10 Microns. *G. H. Rieke*. **206**, L15, 47-B3 (1976)
- The Optical Appearance of Model Primeval Galaxies. *David L. Meier*. **207**, 343, 63-A4 (1976)
- A Dynamical Model for the Central Region of M31. *Maria Teresa Ruiz*. **207**, 382, 63-D3 (1976)
- The Equilibrium and Stability of Uniformly Rotating, Isothermal Gas Cylinders. *Carl J. Hansen, Morris L. Aizenman, and Randy L. Ross*. **207**, 736, 68-E1 (1976)
- 2-4 Micron Spectrophotometric Observations of the Galactic Center. *B. T. Soifer, R. W. Russell, and K. M. Merrill*. **207**, L83, 67-B1 (1976)
- The Optical Spectrum of I Zwicky 1. *M. M. Phillips*. **208**, 37, 74-D1 (1976)
- Dynamical Response of the Interstellar Medium to Explosions at the Galactic Center. *Richard J. Defouw*. **208**, 52, 74-E2 (1976)
- The Effect of Suprathermal Protons on the Physical Conditions in Seyfert Galaxy Nuclei. II. *Ronald Stoner and Roger Ptak*. **208**, 298, 78-B12 (1976)
- Infrared Observations of NGC 5128. *G. L. Grasdale and R. Joyce*. **208**, 317, 78-D3 (1976)
- Implications of the Presence of Deuterium in the Galactic Center. *Jean Audouze, James Lequeux, Hubert Reeves, and Laurent Vigroux*. **208**, L51, 82-A6 (1976)
- Propagation of Blast Waves. *A. Cavaliere and A. Messina*. **209**, 424, 94-B1 (1976)
- Population Synthesis of the Nuclei of 10 Nearby Galaxies. *T. B. Williams*. **209**, 716, 98-E12 (1976)
- Spectroscopic Observations of Seyfert Galaxy Nuclei. *J. W. Glaspey, G. A. H. Walker, and Alan Stockton*. **210**, 27, 103-C6 (1976)
- The Stellar Content of the Nuclear Regions of Sc Galaxies. *Barry E. Turnrose*. **210**, 33, 103-C12 (1976)
- Infrared Polarization of the Galactic Center. *R. W. Capps and R. F. Knacke*. **210**, 76, 103-G10 (1976)
- The Polarization of BL Lacertae at Visible and Infrared Wavelengths. *R. F. Knacke, R. W. Capps, and M. Johns*. **210**, L69, 111-B8 (1976)
- Observations of a Radio Source in the Nucleus of M81 with Dimensions Less than 1300 Astronomical Units. *K. I. Kellermann, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, and A. Witzel*. **210**, L121, 115-A6 (1976)
- Kinematics of the Gas in the Nuclear Disk of M81. *Jean W. Goad*. **32**, 89, 23-A1 (1976) (Abstr. in **208**, 271, 76-G9)
- Emission-Line Galaxies and Quasars. II. The Classification Systems and List N1, Declination $\leq -27^{\circ}5$, Galactic Latitude $\geq +20^{\circ}$. *Malcolm G. Smith, Cecilia Aguirre, and Mario Zemelman*. **32**, 217, 25-F1 (1976) (Abstr. in **208**, 955, 86-E4)
- Galaxies: Photometry**
- The Hubble Diagram for Nuclear Magnitudes. *Daniel Weedman*. **203**, 6, 1-A9 (1976)
- K-Corrections for Galaxies of Different Morphological Types. *W. Pence*. **203**, 39, 1-C13 (1976)
- Evolutionary Synthesis of the Stellar Population in Elliptical Galaxies. I. Ingredients, Broad-Band Colors, and Infrared Features. *Beatrice M. Tinsley and James E. Gunn*. **203**, 52, 1-D12 (1976)
- Composition Gradients across Spiral Galaxies. II. The Stellar Mass Limit. *G. A. Shields and Beatrice M. Tinsley*. **203**, 66, 1-E12 (1976)
- An Analytic Expression for the Luminosity Function for Galaxies. *P. Schechter*. **203**, 297, 5-B3 (1976)
- Method for Determining Maximum-Likelihood Distance for Groups of Galaxies. *Paul Schechter and William H. Press*. **203**, 557, 9-A4 (1976)
- H α Emission from the Disks of Spiral Galaxies. *Judith G. Cohen*. **203**, 587, 9-C7 (1976)
- Cool Stellar Populations in E/S0 Galaxies and a Possible Outburst in M87. *Robert W. O'Connell*. **203**, L1, 4-C2 (1976)
- Color and Metallicity Gradients in E and S0 Galaxies. *S. E. Strom, K. M. Strom, J. W. Goad, F. J. Vrba, and W. Rice*. **204**, 684, 23-E3 (1976)
- Color Gradients in the Nuclear Region of M31. *Trinh X. Thuan and J. B. Oke*. **205**, 360, 33-E3 (1976)
- Spectrophotometric Observations of N Galaxies at Large Redshift: PKS 0353+027, 3C 99, 3C 467. *Harding E. Smith, Hyron Spinrad, and Richard Hunstead*. **206**, 345, 48-A4 (1976)
- Bright Galaxies in Rich Clusters: Test of a Statistical Model for Magnitude Distributions. *M. J. Geller and P. J. E. Peebles*. **206**, 939, 55-G1 (1976)
- Density Waves in the Disks of Two Spiral Galaxies. *S. E. Strom, E. B. Jensen, and K. M. Strom*. **206**, L11, 47-A10 (1976)
- The Near-Infrared Continua of Emission-Line Galaxies. *David A. Allen*. **207**, 367, 63-C1 (1976)
- Binary Galaxies. I. A Well-defined Statistical Sample. *Edwin L. Turner*. **208**, 20, 74-B11 (1976)
- The Post-eruptive Galaxy NGC 5128 = Centaurus A. *Sidney van den Bergh*. **208**, 673, 83-D6 (1976)
- Photometry of the "Seyfert Sextet" (VV 115) and the Anonymous Galaxy 1558.2+2100. *Donald H. Martins and Guido Chincarini*. **209**, 372, 93-E2 (1976)
- Surface Photometry of the Spiral Galaxy IC 2233 and the Existence of Massive Halos. *J. S. Gallagher and H. S. Hudson*. **209**, 389, 93-F8 (1976)
- On the Significance of the Luminosities of First-ranked Members of Sparse Groups of Galaxies. *Paul L. Schechter and P. J. E. Peebles*. **209**, 670, 98-B8 (1976)
- The Structure of Elliptical cD Galaxies. *Augustus Oemler, Jr.* **209**, 693, 98-D3 (1976)
- The Infrared Emission of Markarian 231. *G. H. Rieke*. **210**, L5, 106-B5 (1976)
- Photometric Studies of Spiral Structure. I. The Disks and

- Arms of Six Sb I and Sc I Galaxies. *François Schweizer*. **31**, 313, 17-A2 (1976) (Abstr. in **206**, 963, 56-A12)
- Galaxies: Redshifts**
- K-Corrections for Galaxies of Different Morphological Types. *W. Pence*. **203**, 39, 1-C13 (1976)
- The Distribution of Redshifts of Quasars and Related Objects. *J. W. Knight, P. A. Sturrock, and P. Switzer*. **203**, 286, 5-A5 (1976)
- The Redshift of 0938+119. *E. A. Beaver, R. Harms, C. Hazard, H. S. Murdoch, R. F. Carswell, and P. F. Strittmatter*. **203**, L5, 4-C6 (1976)
- Critique of Bell and Fort's Quasar Model. *Jeno M. Barnothy and George J. Corso*. **204**, 337, 18-B12 (1976)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift-Magnitude Relation Derived from Nearby Groups and Sc Galaxies. *G. de Vaucouleurs*. **205**, 13, 28-B3 (1976)
- The Log N-Log S Curve for 3CR Radio Galaxies and the Problem of Identifying Faint Radio Galaxies. *G. R. Burbidge and J. V. Narlikar*. **205**, 329, 33-B8 (1976)
- The Extension of the Hubble Diagram. I. New Redshifts and BVR Photometry of Remote Cluster Galaxies, and an Improved Richness Correction. *Allan Sandage, Jerome Kristian, and James A. Westphal*. **205**, 688, 38-C5 (1976)
- Direct Observations of the Large-Scale Distribution of Galaxies. *W. G. Tifft and S. A. Gregory*. **205**, 696, 38-C13 (1976)
- Systematic Redshifts in the Outer Regions of the Coma Cluster. *Stephen A. Gregory and William G. Tifft*. **205**, 716, 38-E7 (1976)
- The Absorption-Line Spectrum of the BL Lacertae Object AO 0235+164. *E. M. Burbidge, R. D. Caldwell, Harding E. Smith, J. Liebert, and H. Spinrad*. **205**, L117, 42-A10 (1976)
- Discrete States of Redshift and Galaxy Dynamics. I. Internal Motions in Single Galaxies. *William G. Tifft*. **206**, 38, 43-C13 (1976)
- Spectrophotometric Observations of N Galaxies at Large Redshift: PKS 0353+027, 3C 99, 3C 467. *Harding E. Smith, Hyron Spinrad, and Richard Hunstead*. **206**, 345, 48-A4 (1976)
- The Distant N Galaxy 3C 318. *Hyron Spinrad and Harding E. Smith*. **206**, 355, 48-B4 (1976)
- Redshifts of Forty-Three Radio Sources. *Marie-Helene Ulrich*. **206**, 364, 48-C2 (1976)
- Gross Optical Properties of the Coma Cluster. *Stephen A. Gregory and William G. Tifft*. **206**, 934, 55-F9 (1976)
- Observations of High-Redshift QSOs from a Molonglo Faint Source Survey. *Jack A. Baldwin, Harding E. Smith, E. Margaret Burbidge, Cyril Hazard, Hugh S. Murdoch, and David L. Jauncey*. **206**, L83, 52-A13 (1976)
- 3C 68.1: A Very Red QSO with an Intermediate Redshift. *A. Boksenberg, R. F. Carswell, and J. B. Oke*. **206**, L121, 56-C2 (1976)
- TV Spectroscopy of Absorption Lines in the Far-Red of PHL 957. *G. R. Gilbert, J. R. P. Angel, S. A. Grandi, G. D. Coleman, P. A. Strittmatter, R. H. Cromwell, and E. B. Jensen*. **206**, L129, 56-C12 (1976)
- The Virgo Clusters. I. The Equality of Mean Redshifts of E and S. Galaxies near the Cluster Center. *Allan Sandage and G. A. Tammann*. **207**, L1, 62-A2 (1976)
- Redshifts of Southern Radio Sources. *Bruce A. Peterson, David L. Jauncey, Alan E. Wright, and James J. Condon*. **207**, L5, 62-A6 (1976)
- Optical Spectrum and Redshifts of a Quasar of Extremely High Intrinsic Luminosity: B2 1225+31. *Marie-Helene Ulrich*. **207**, L73, 67-A2 (1976)
- The Redshift of the BL Lacertae Object PKS 0548-322. *R. A. E. Fosbury and M. J. Disney*. **207**, L75, 67-A6 (1976)
- The Absorption Spectrum of the Quasar PHL 1222. *R. E. Williams and R. J. Weymann*. **207**, L143, 72-A2 (1976)
- Binary Galaxies. I. A Well-defined Statistical Sample. *Edwin L. Turner*. **208**, 20, 74-B11 (1976)
- Luminosities of Seyfert Galaxies and QSOs. *Daniel W. Weedman*. **208**, 30, 74-C7 (1976)
- Velocities of Galaxies in Cluster A1367. *Donald H. Gudehus*. **208**, 267, 76-G4 (1976)
- Identification and Redshift of the Triple Radio Source 3C 154. *Hyron Spinrad and James Liebert*. **208**, 292, 78-B7 (1976)
- On the Reality of Periodicities in the Redshift Distribution of Emission-Line Objects. *Richard F. Green and Douglas O. Richstone*. **208**, 639, 83-A4 (1976)
- Supergalactic Studies. V. The Supergalactic Anisotropy of the Redshift Magnitude Relation Derived from Nearby Groups and Sc Galaxies: Erratum. *G. de Vaucouleurs*. **208**, 958, 86-E7 (1976) (Orig. paper in **205**, 13, 28-B3)
- Apparent Luminosities in a Locally Inhomogeneous Universe. *Steven Weinberg*. **208**, L1, 77-A2 (1976)
- An X-Ray Redshift Measure for Clusters of Galaxies Up to $z \geq 1$. *Elihu Boldt*. **208**, L15, 77-B1 (1976)
- Redshift Anomaly in Associations of Clusters of Galaxies? *L. Nottale*. **208**, L103, 86-F2 (1976)
- Observational Evidence against a Time Variation in Planck's Constant. *Jan-Erik Solheim, Thomas G. Barnes III, and Harlan J. Smith*. **209**, 330, 93-B1 (1976)
- Surface Brightness and Evolution of Galaxies. *Vahé Petrosian*. **209**, L1, 92-A2 (1976)
- Surface Brightness Parameters as Tests of Galactic Evolution (Correct version appearing 1976 December 1). *Beatrice M. Tinsley*. **209**, L7, 92-A7 (1976)
- Steps toward the Hubble Constant. VII. Distances to NGC 2403, M101, and the Virgo Cluster Using 21 Centimeter Line Widths Compared with Optical Methods: The Global Value of H_0 . *Allan Sandage and G. A. Tammann*. **210**, 7, 103-A10 (1976)
- Spectroscopy of QSO Pairs. *J. G. Bolton, B. A. Peterson, Beverley J. Wills, and D. Wills*. **210**, L1, 106-B2 (1976)
- Surface Brightness Parameters as Tests of Galactic Evolution. *Beatrice M. Tinsley*. **210**, L49, 111-A2 (1976)
- A Quasar near a Companion Galaxy, NGC 5296. *Halton Arp*. **210**, L59, 111-A11 (1976)
- Spectroscopy of 206 QSO Candidates and Radio Galaxies. *D. Wills and Beverley J. Wills*. **31**, 143, 13-B1 (1976) (Abstr. in **205**, 658, 36-E13)
- Galaxies: Seyfert**
- The Radio Spectra of Markarian Galaxies. *Gabriel Kojoian, Richard A. Sramek, Dale F. Dickinson, H. Tovmassian, and C. R. Purton*. **203**, 323, 5-D1 (1976)
- Markarian 376: A Seyfert Galaxy with Strong Fe II Emission. *D. E. Osterbrock*. **203**, 329, 5-D7 (1976)
- Profiles of the [O III] Nebular Lines in Two Bright Seyfert Galaxies. *J. W. Glaspey, J. A. Eilek, G. G. Fahlman, and J. R. Auman*. **203**, 335, 5-D13 (1976)
- Physical Conditions in a Hydrogen Gas Heated by Suprathermal Protons. *Edward Kimmer*. **203**, 674, 10-C1 (1976)
- Electron Temperature in the Elliptical Galaxy NGC 1052. *A. T. Koski and D. E. Osterbrock*. **203**, L49, 8-B5 (1976)
- Far-Infrared Photometry of NGC 1068. *C. M. Telesco, D. A. Harper, and R. F. Loewenstein*. **203**, L53, 8-B8 (1976)
- Possible Collisional Enhancement of He I $\lambda 5876$ in Seyfert Galaxies and QSOs. *Gordon M. MacAlpine*. **204**, 694, 23-E13 (1976)
- Optical and Infrared Spectrophotometry of 18 Markarian Galaxies. *G. Neugebauer, E. E. Becklin, J. B. Oke, and L. Searle*. **205**, 29, 28-C7 (1976)
- The Origin of Ultraviolet and Infrared Continuum Radiation from Seyfert Galaxies. *Wayne A. Stein and Daniel W. Weedman*. **205**, 44, 28-D8 (1976)
- The Optical Spectra of 3C 227 and Other Broad-Line Radio Galaxies. *D. E. Osterbrock, A. T. Koski, and M. M. Phillips*. **206**, 898, 55-D1 (1976)
- Nonrelativistic Compton Scattering and Models of Quasars. *J. I. Katz*. **206**, 910, 55-D13 (1976)
- The Origin of Optical Polarization in NGC 1068. *J. R. P. Angel, H. S. Stockman, N. J. Woolf, E. A. Beaver, and P.*

Galaxies: Seyfert—Continued

- G. Martin. **206**, L5, 47-A5 (1976)
- Search for X-Ray Emission from BL Lacertae Objects and Nearby Seyfert Galaxies. M. P. Ulmer and S. S. Murray. **207**, 364, 63-B11 (1976)
- The Near-Infrared Continua of Emission-Line Galaxies. David A. Allen. **207**, 367, 63-C1 (1976)
- Seyfert Galaxies with Strong Fe II Emission. J. B. Oke and G. A. Shields. **207**, 713, 68-C4 (1976)
- The Radio Brightness Distribution of Eight Markarian Galaxies. R. A. Sramek and H. M. Tovmassian. **207**, 725, 68-D5 (1976)
- The Brightness Distribution of 3C 84. D. N. Fort. **207**, L155, 72-B6 (1976)
- The Variability and Absorption of the X-Ray Emission from NGC 4151. J. C. Ives, P. W. Sanford, and M. V. Penston. **207**, L159, 72-B9 (1976)
- Luminosities of Seyfert Galaxies and QSOs. Daniel W. Weedman. **208**, 30, 74-C7 (1976)
- The Optical Spectrum of I Zwicky 1. M. M. Phillips. **208**, 37, 74-D1 (1976)
- 8–13 Micron Spectrophotometry of NGC 1068. D. E. Kleinmann, F. C. Gillett, and E. L. Wright. **208**, 42, 74-D6 (1976)
- Identification and Redshift of the Triple Radio Source 3C 154. Hyron Spinrad and James Liebert. **208**, 292, 78-B7 (1976)
- The Effect of Suprathermal Protons on the Physical Conditions in Seyfert Galaxy Nuclei. II. Ronald Stoner and Roger Ptak. **208**, 298, 78-B12 (1976)
- Cloud Acceleration by Cosmic Rays in the Vicinity of Compact Luminous Objects. Jean A. Eilek and Lawrence J. Caroff. **208**, 887, 85-G2 (1976)
- Night-to-Night Variations in the Optical Polarization of the Nucleus of NGC 1275. P. G. Martin, J. R. P. Angel, and J. Maza. **209**, L21, 92-B8 (1976)
- On the Interpretation of Fe II Emission Profiles in Seyfert Galaxies and QSOs. Roger Ptak and Ronald Stoner. **210**, 25, 103-C4 (1976)
- Spectroscopic Observations of Seyfert Galaxy Nuclei. J. W. Glaspey, G. A. H. Walker, and Alan Stockton. **210**, 27, 103-C6 (1976)
- The Infrared Emission of Markarian 231. G. H. Rieke. **210**, L5, 106-B5 (1976)
- Variation of the Spectrum of the Seyfert Galaxy NGC 7603. J. E. Tohline and D. E. Osterbrock. **210**, L117, 115-A2 (1976)
- Emission-Line Galaxies and Quasars. II. The Classification Systems and List N1, Declination $\leq -27^\circ 5'$, Galactic Latitude $\geq +20^\circ$. Malcolm G. Smith, Cecilia Aguirre, and Mario Zemelman. **32**, 217, 25-F1 (1976) (Abstr. in **208**, 955, 86-E4)
- Galaxies: Stellar Content**
- K-Corrections for Galaxies of Different Morphological Types. W. Pence. **203**, 39, 1-C13 (1976)
- Evolutionary Synthesis of the Stellar Population in Elliptical Galaxies. I. Ingredients, Broad-Band Colors, and Infrared Features. Beatrice M. Tinsley and James E. Gunn. **203**, 52, 1-D12 (1976)
- Effects of Main-Sequence Brightening on the Luminosity Evolution of Elliptical Galaxies. Beatrice M. Tinsley. **203**, 63, 1-E9 (1976)
- Composition Gradients across Spiral Galaxies. II. The Stellar Mass Limit. G. A. Shields and Beatrice M. Tinsley. **203**, 66, 1-E12 (1976)
- H α Emission from the Disks of Spiral Galaxies. Judith G. Cohen. **203**, 587, 9-C7 (1976)
- The Semistellar Nucleus of M33. Sidney van den Bergh. **203**, 764, 11-C2 (1976)
- Cool Stellar Populations in E/S0 Galaxies and a Possible Outburst in M87. Robert W. O'Connell. **203**, L1, 4-C2 (1976)
- Statistics of Extragalactic Supernovae. José Maza and Sidney van den Bergh. **204**, 519, 20-B4 (1976)
- On the Formation of Spiral and Elliptical Galaxies. J. Richard Gott III and Trinh X. Thuan. **204**, 649, 23-B8 (1976)
- Velocity Dispersions and Mass-to-Light Ratios for Elliptical Galaxies. S. M. Faber and Robert E. Jackson. **204**, 668, 28-C13 (1976)
- Color and Metallicity Gradients in E and S0 Galaxies. S. E. Strom, K. M. Strom, J. W. Goad, F. J. Vrba, and W. Rice. **204**, 684, 23-E3 (1976)
- Color Gradients in the Nuclear Region of M31. Trinh X. Thuan and J. B. Oke. **205**, 360, 33-E3 (1976)
- H II Region in NGC 628. I. Positions and Sizes. Paul W. Hodge. **205**, 728, 38-F5 (1976)
- Galaxy Spectral Synthesis. I. Stellar Populations in the Nuclei of Giant Ellipticals. Robert W. O'Connell. **206**, 370, 48-C7 (1976)
- Production of Galactic ^7Li by Slow Mass Loss. John M. Scalo. **206**, 795, 54-C1 (1976)
- The Origin of X-Ray Sources in Clusters of Galaxies. J. I. Katz. **207**, 25, 58-C3 (1976)
- The Optical Appearance of Model Primeval Galaxies. David L. Meier. **207**, 343, 63-A4 (1976)
- The Post-eruptive Galaxy NGC 5128 = Centaurus A. Sidney van den Bergh. **208**, 673, 83-D6 (1976)
- The Chemical Evolution of the Galactic Halo. F. D. A. Hartwick. **209**, 418, 94-A9 (1976)
- Population Synthesis of the Nuclei of 10 Nearby Galaxies. T. B. Williams. **209**, 716, 98-E12 (1976)
- The Stellar Content of the Nuclear Regions of Sc Galaxies. Barry E. Turnrose. **210**, 33, 103-C12 (1976)
- On s-Process Abundance Evolution in the Galactic Disk. H. R. Butcher. **210**, 489, 109-B11 (1976)
- Photometric Studies of Spiral Structure. I. The Disks and Arms of Six Sb I and Sc I Galaxies. François Schweizer. **31**, 313, 17-A2 (1976) (Abstr. in **206**, 963, 56-A12)
- Galaxies: Stellar Statistics**
- Gross Optical Properties of the Coma Cluster. Stephen A. Gregory and William G. Tifft. **206**, 934, 55-F9 (1976)
- Galaxies: Structure**
- The Effect of Dynamical Friction on the Orbits of the Magellanic Clouds. Scott D. Tremaine. **203**, 72, 1-F4 (1976)
- On the Mass of the Halo Population. L. B. Lucy. **203**, 75, 1-F7 (1976)
- On Density Waves in Galaxies. II. The Turning-Point Problem at the Corotation Region. James W-K. Mark. **203**, 81, 1-F13 (1976)
- Accretion by the Galaxy: Effects of Radiative Cooling on the Flow Structure and Infall Rate. Donald P. Cox and Barham W. Smith. **203**, 361, 5-F11 (1976)
- H α Emission from the Disks of Spiral Galaxies. Judith G. Cohen. **203**, 587, 9-C7 (1976)
- Neutral Hydrogen in the W41 Region. Courtney P. Gordon, Kurtiss J. Gordon, and Michael R. Jacobson. **203**, 593, 9-C13 (1976)
- Rolling Motions in an Inner Spiral Arm. F. M. Strauss and W. Poeppel. **204**, 94, 14-A11 (1976)
- A Spinal Model of Cygnus A. F. Michael Flasar and Philip Morrison. **204**, 352, 18-C13 (1976)
- An Almost Complete Survey of 21 Centimeter Radiation for $|b| \geq 10^\circ$. III. The Interdependence of H I, Galaxy Counts, Reddening, and Galactic Latitude. Carl Heiles. **204**, 379, 18-E11 (1976)
- On the Formation of Spiral and Elliptical Galaxies. J. Richard Gott III and Trinh X. Thuan. **204**, 649, 23-B8 (1976)
- The Distribution of the Galactic Compact X-Ray Sources: A Statistical Analysis. Sabatino Sofia and François Wesemael. **205**, 233, 30-E3 (1976)
- On Density Waves in Galaxies. III. Wave Amplification by Stimulated Emission. James W-K. Mark. **205**, 363, 33-E6 (1976)
- Expected Rate of Transient Events from Stellar Deaths in Other Galaxies. Raymond J. Talbot, Jr. **205**, 535, 35-D2 (1976)
- Dynamics of Flat Galaxies. II. Biorthonormal Surface Density-Potential Pairs for Finite Disks. Agris J. Kalnajs.

- 205, 745, 38-G11 (1976)
- Dynamics of Flat Galaxies. III. Equilibrium Models. *Agris J. Kalnajs*. **205**, 751, 39-A3 (1976)
- Dynamics of CO Molecular Clouds in the Galaxy. *Frank N. Bash and William L. Peters*. **205**, 786, 39-C11 (1976)
- Noncircular Motions in the Perseus Spiral Arm. *Roberta M. Humphreys*. **206**, 114, 44-B6 (1976)
- On Density Waves in Galaxies. IV. Wave Amplification through Processes that Remove Angular Momentum from Galactic Disks. *James W-K. Mark*. **206**, 418, 48-G1 (1976)
- The Structure of the Galactic Disk and Its Implications for Gamma-Ray Astronomy. *B. Fuchs, R. Schlickeiser, and K. O. Thielheim*. **206**, 589, 50-F1 (1976)
- A New Classification System for Galaxies. *Sidney van den Bergh*. **206**, 883, 55-B9 (1976)
- A Reinvestigation of the Scattering Halo of M82 Based on Polarimetric and Isophotal Maps. *Gary D. Schmidt, J. R. P. Angel, and R. H. Cromwell*. **206**, 888, 55-C1 (1976)
- The Evolution of Massive Collapsing Gas Clouds. *Sabastian von Hoerner and William C. Saslaw*. **206**, 917, 55-E6 (1976)
- Density Waves in the Disks of Two Spiral Galaxies. *S. E. Strom, E. B. Jensen, and K. M. Strom*. **206**, L11, 47-A10 (1976)
- H II Regions in NGC 628. II. Analysis of the Spatial Distribution. *R. C. Kennicutt and P. W. Hodge*. **207**, 36, 58-D1 (1976)
- Distribution of Gas, Magnetic Fields, and Cosmic Rays in the Galaxy. *J. Paul, M. Cassé, and C. J. Cesarsky*. **207**, 62, 58-E12 (1976)
- An Approximate Dynamical Model for Spheroidal Stellar Systems. *Maria Teresa Ruiz and M. Schwarzschild*. **207**, 376, 63-C11 (1976)
- A Dynamical Model for the Central Region of M31. *Maria Teresa Ruiz*. **207**, 382, 63-D3 (1976)
- Predominance of Two-armed Spirals. *R. H. Miller*. **207**, 408, 63-F2 (1976)
- The Equilibrium and Stability of Uniformly Rotating, Isothermal Gas Cylinders. *Carl J. Hansen, Morris L. Aizenman, and Randy L. Ross*. **207**, 736, 68-E1 (1976)
- The Space Distribution of Globular Clusters in M87. *William E. Harris and Malcolm G. Smith*. **207**, 1036, 71-F10 (1976)
- Carbon Monoxide in the Galaxy. II. The Thickness of the Galactic CO Layer. *W. B. Burton and M. A. Gordon*. **207**, L189, 72-D11 (1976)
- Dynamical Response of the Interstellar Medium to Explosions at the Galactic Center. *Richard J. Defouw*. **208**, 52, 74-E2 (1976)
- Abundance Gradients in Extragalactic H II Regions and Internal Absorption by Dust. *Craig L. Sarazin*. **208**, 323, 78-D9 (1976)
- Carbon Monoxide in the Galaxy. I. The Radial Distribution of CO, H₂, and Nucleons. *M. A. Gordon and W. B. Burton*. **208**, 346, 78-F4 (1976)
- Ring Galaxies. I. *J. C. Theys and E. A. Spiegel*. **208**, 650, 83-B1 (1976)
- The Post-eruptive Galaxy NGC 5128 = Centaurus A. *Sidney van den Bergh*. **208**, 673, 83-D6 (1976)
- On the Extragalactic Interpretation of High-Velocity H I Clouds. *David Eichler*. **208**, 694, 83-F7 (1976)
- The Pulsar Contribution to the Galactic Gamma-Ray Emission. *J. C. Higdon and R. E. Lingenfelter*. **208**, L107, 86-F6 (1976)
- The Angular Momentum Properties of Galaxies in Rich Clusters. *Laird A. Thompson*. **209**, 22, 88-B12 (1976)
- Radio Trails in the Slingshot Theory. *Mauri Valtonen*. **209**, 35, 88-C12 (1976)
- Gas Response to Oval Distortions in Disk Galaxies. *R. H. Sanders and J. M. Huntley*. **209**, 53, 88-E4 (1976)
- On the Interpretation of Ring Galaxies: The Binary Ring System II Hz 4. *Roger Lynds and Alar Toomre*. **209**, 382, 93-E12 (1976)
- Surface Photometry of the Spiral Galaxy IC 2233 and the Existence of Massive Halos. *J. S. Gallagher and H. S. Hudson*. **209**, 389, 93-F8 (1976)
- A Survey of Ionized Hydrogen in the Plane of the Galaxy. *Felix J. Lockman*. **209**, 429, 94-B6 (1976)
- The Structure of Elliptical cD Galaxies. *Augustus Oemler, Jr.*. **209**, 693, 98-D3 (1976)
- H I in Early-Type Galaxies. III. Observations of S0 Galaxies. *Bruce Balick, S. M. Faber, and J. S. Gallagher*. **209**, 710, 98-E6 (1976)
- Composition Gradients in Spiral Galaxies: A Consistency Check on the Density-Wave Theory. *E. B. Jensen, K. M. Strom, and S. E. Strom*. **209**, 748, 99-A1 (1976)
- Image Processing of Galaxy Photographs. *Halton Arp and Jean Lorre*. **210**, 58, 103-E9 (1976)
- Metal Abundances of RR Lyrae Variables in Selected Galactic Star Fields. I. Baade's Window. *Dennis Butler, Duane Carbon, and Robert P. Kraft*. **210**, 120, 104-D1 (1976)
- Model Galactic Coronae: Ionization Structure and Absorption-Line Spectra. *Jon G. Weisheit and Lee A. Collins*. **210**, 299, 107-B10 (1976)
- Propagating Star Formation and Irregular Structure in Spiral Galaxies. *Mark W. Mueller and W. David Arnett*. **210**, 670, 112-E1 (1976)
- Stellar Population Samples at the Galactic Poles. III. *UBVR* Observations of Proper Motion Stars near the South Pole and the Luminosity Laws for the Halo and Old Disk Populations. *O. J. Eggen*. **30**, 351, 6-F1 (1976) (Abstr. in **204**, 313, 16-D10)
- Photometric Studies of Spiral Structure. I. The Disks and Arms of Six Sb I and Sc I Galaxies. *François Schweizer*. **31**, 313, 17-A2 (1976) (Abstr. in **206**, 963, 56-A12)
- Kinematics of the Gas in the Nuclear Disk of M81. *Jean W. Goad*. **32**, 89, 23-A1 (1976) (Abstr. in **208**, 271, 76-G9)
- Galaxy, The: see Galaxies: Milky Way**
- Gamma Rays: Bursts**
- A Cosmic Gamma-Ray Burst on 1975 May 14. *Dennis Herzo, Bruce Dayton, Allen D. Zych, and R. Stephen White*. **203**, L115, 11-D13 (1976)
- Expected Rate of Transient Events from Stellar Deaths in Other Galaxies. *Raymond J. Talbot, Jr.*. **205**, 535, 35-D2 (1976)
- Gamma Rays from Primordial Black Holes. *Don N. Page and S. W. Hawking*. **206**, 1, 43-A4 (1976)
- Flares on White Dwarfs and Gamma-Ray Bursts. *D. J. Mullan*. **208**, 199, 76-B4 (1976)
- Gamma Rays: General**
- Solar Gamma-Ray Lines as Probes of Accelerated Particle Directionalities in Flares. *Reuven Ramaty and Carol Jo Crannell*. **203**, 766, 11-C4 (1976)
- The Structure of the Galactic Disk and Its Implications for Gamma-Ray Astronomy. *B. Fuchs, R. Schlickeiser, and K. O. Thielheim*. **206**, 589, 50-F1 (1976)
- Gamma-Ray Emission and Nucleosynthesis of Lithium by Young Pulsars. *Donald D. Clayton and Eliahu Dwek*. **206**, L59, 47-E7 (1976)
- Distribution of Gas, Magnetic Fields, and Cosmic Rays in the Galaxy. *J. Paul, M. Cassé, and C. J. Cesarsky*. **207**, 62, 58-E12 (1976)
- Observations with a High-Resolution Balloon-borne Gamma-Ray Telescope. *S. P. McKechnie, K. E. Mount, and D. Ramsden*. **207**, L151, 72-B2 (1976)
- Significance of Medium-Energy Gamma-Ray Astronomy in the Study of Cosmic Rays. *C. E. Fichtel, D. A. Kniffen, D. J. Thompson, G. F. Bignami, and C. Y. Cheung*. **208**, 211, 76-C2 (1976)
- Gamma-Ray Production by the Inverse Compton Process in Interstellar Space. *P. G. Shukla and J. Paul*. **208**, 893, 85-G8 (1976)
- The Pulsar Contribution to the Galactic Gamma-Ray Emission. *J. C. Higdon and R. E. Lingenfelter*. **208**, L107, 86-F6 (1976)
- Spectrum and Origin of X- and Gamma-Ray Diffuse

Gamma Rays: General—Continued

- Background. Robert Rocchia, René Ducros, and Bernard Gaffet. **209**, 350, 93-C7 (1976)
- A Search of the SAS-2 Data for Pulsed Gamma-Ray Emission from Radio Pulsars. H. Ögelman, C. E. Fichtel, D. A. Kniffen, and D. J. Thompson. **209**, 584, 95-F9 (1976)
- Evidence for a Variable Flux of $>10^{11}$ eV Gamma-Rays from NP 0532. J. E. Grindlay, H. F. Helmken, and T. C. Weekes. **209**, 592, 95-G3 (1976)
- Search for Pulsed Gamma Rays of $\sim 10^{13}$ eV from NP 0532. R. A. Erickson, R. K. Fickle, and R. C. Lamb. **210**, 539, 109-F7 (1976)
- Formation of the 0.511 MeV line in Solar Flares. Carol Jo Crannell, Glenn Joyce, Reuven Ramaty, and Carl Wertz. **210**, 582, 110-C2 (1976)
- Detection of Nuclear Gamma Rays from Centaurus A. R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes. **210**, 631, 112-B4 (1976)

Gas Dynamics: see Hydrodynamics**Gravitation**

- On the Detectability of Gravitational Waves from W Ursae Majoris Binary Stars. William L. Burke. **203**, 694, 10-D7 (1976)
- On the Maximum Gravitational Redshift of White Dwarfs. Stuart L. Shapiro and Saul A. Teukolsky. **203**, 697, 10-D10 (1976)
- Active Mass in Relativistic Gravity: Theoretical Interpretation of the Kreuzer Experiment. Clifford M. Will. **204**, 224, 15-D11 (1976)
- The Growth of Correlations in an Expanding Universe and the Clustering of Galaxies. S. Michael Fall and William C. Saslaw. **204**, 631, 23-A4 (1976)
- Gravitational-Wave Bursts from the Nuclei of Distant Galaxies and Quasars: Proposal for Detection Using Doppler Tracking of Interplanetary Spacecraft. Kip S. Thorne and Vladimir B. Braginsky. **204**, L1, 17-A2 (1976)
- Exact Evolution of Photons in an Anisotropic Cosmology with Scattering. William H. Press. **205**, 311, 33-A4 (1976)
- Multiple Image Probabilities for a Spheroidal Gravitational Lens. R. R. Bourassa and R. Kantowski. **205**, 674, 38-B5 (1976)
- On the Nonexpansion of the Galaxy. Michael W. Ovenden and John Byl. **206**, 57, 43-E4 (1976)
- Changing Gravitational Constant and White Dwarfs. Samuel C. Vila. **206**, 213, 45-B13 (1976)
- Theoretical Frameworks for Testing Relativistic Gravity. V. Post-Newtonian Limit of Rosen's Theory. David L. Lee, Carlton M. Caves, Wei-Tou Ni, and Clifford M. Will. **206**, 555, 50-C3 (1976)
- Search for Evidence of a Preferred Reference Frame. Richard J. Warburton and John M. Goodkind. **208**, 881, 85-F10 (1976)
- Apparent Luminosities in a Locally Inhomogeneous Universe. Steven Weinberg. **208**, L1, 77-A2 (1976)
- Comments on Gravitational Radiation Damping and Energy Loss in Binary Systems. Jürgen Ehlers, Arnold Rosenblum, Joshua N. Goldberg, and Peter Havas. **208**, L77, 82-C2 (1976)
- Post-Newtonian Gravitational Radiation from Orbiting Point Masses. Robert V. Wagoner and Clifford M. Will. **210**, 764, 113-E3 (1976)

H II Regions: see Nebulae: General**Hydrodynamics**

- Spherical Winds and Accretion in General Relativity. George R. Blumenthal and William G. Mathews. **203**, 714, 10-F1 (1976)
- Rolling Motions in an Inner Spiral Arm. F. M. Strauss and W. Poepfel. **204**, 94, 14-A11 (1976)
- On Density Waves in Galaxies. III. Wave Amplification by Stimulated Emission. James W-K. Mark. **205**, 363, 33-E6 (1976)

- Radiative Shock Dynamics. I. The Lyman Continuum. Richard I. Klein, Robert F. Stein, and Wolfgang Kalkofen. **205**, 499, 35-A8 (1976)
- The Evolution of Massive Collapsing Gas Clouds. Sebastian von Hoerner and William C. Saslaw. **206**, 917, 55-E6 (1976)
- The Equations of Photohydrodynamics. S.-H. Hsieh and E. A. Spiegel. **207**, 244, 60-E12 (1976)
- Shock-driven Implosion of Interstellar Gas Clouds and Star Formation. Paul R. Woodward. **207**, 484, 64-E5 (1976)
- The Equilibrium and Stability of Uniformly Rotating, Isothermal Gas Cylinders. Carl J. Hansen, Morris L. Aizenman, and Randy L. Ross. **207**, 736, 68-E1 (1976)
- Turbulence in Tidally Distorted Stars. Fredrick Hampton Seguin. **207**, 848, 69-F4 (1976)
- The Hydrodynamics of Type II Supernovae. Roger A. Chevalier. **207**, 872, 70-A2 (1976)
- Relativistic Fluid Disks in Orbit around Kerr Black Holes. Leslie G. Fishbone and Vincent Moncrief. **207**, 962, 70-G10 (1976)
- Oscillation and Collapse of Interstellar Clouds. Stephen V. Weber. **208**, 113, 75-C1 (1976)
- A Suggestion for the Alternating Amplitudes of RV Tauri Variables. Robert G. Deupree and Stephen W. Hodson. **208**, 426, 79-E10 (1976)
- Steady Accretion of a Rotating Fluid. Patrick Cassen and Donald Pettibone. **208**, 500, 80-D3 (1976)
- CNO Abundances and Hydrodynamic Models of the Nova Outburst. IV. Comparison with Observations. Warren M. Sparks, Sumner Starrfield, and James W. Truran. **208**, 819, 85-B3 (1976)
- Superfluidity in Neutron Stars. II. After a Period Jump. George Greenstein. **208**, 836, 85-C6 (1976)
- Stationary Stars Are Axisymmetric. Lee Lindblom. **208**, 873, 85-F2 (1976)
- Gas Response to Oval Distortions in Disk Galaxies. R. H. Sanders and J. M. Huntley. **209**, 53, 88-E4 (1976)
- Penetrative Convection in a Layer of Fluid Heated from Within. Joe M. Straus. **209**, 179, 89-G7 (1976)
- Post-Galilean Invariance of the Post-Newtonian Eulerian Equations of Hydrodynamics. N. Spyrou. **209**, 243, 90-E5 (1976)

Hydromagnetics

- Current Flow in Pulsar Magnetospheres. Andrew Cheng, Malvin Ruderman, and Peter Sutherland. **203**, 209, 3-C5 (1976)
- Magnetospheric Shock Discontinuities in Pulsars. I. Analysis of the Inertial Effects at the Light Cylinder. Houshang Ardavan. **203**, 226, 3-D8 (1976)
- A Local Diffusion Process Associated with the Sweeping of Energetic Particles by Io. J. D. Huba and C. S. Wu. **203**, 268, 3-G10 (1976)
- A Two-Region Model of the Solar Wind Including Azimuthal Velocity. Mario H. Acuna and Y. C. Whang. **203**, 720, 10-F7 (1976)
- The Flux of Alfvén Waves in Sunspots. Jacques M. Beckers. **203**, 739, 11-A1 (1976)
- Hydraulic Concentration of Magnetic Fields in the Solar Photosphere. III. Fields of One or Two Kilogauss. E. N. Parker. **204**, 259, 15-G11 (1976)
- Overstability and Cooling in Sunspots. B. Roberts. **204**, 268, 16-A6 (1976)
- Solar Magneto-atmospheric Waves. I. An Exact Solution for a Horizontal Magnetic Field. Alan H. Nye and John H. Thomas. **204**, 573, 20-F9 (1976)
- Solar Magneto-atmospheric Waves. II. A Model for Running Penumbra Waves. Alan H. Nye and John H. Thomas. **204**, 582, 20-G4 (1976)
- Magnetohydrodynamic Phenomena in Collapsing Stellar Cores. David L. Meier, Richard I. Epstein, W. David Arnett, and David N. Schramm. **204**, 869, 25-D10 (1976)
- A Nonlinear Theory of Cosmic-Ray Pitch-Angle Diffusion in Homogeneous Magnetostatic Turbulence. Melvyn L.

- Goldstein*. **204**, 900, 25-F13 (1976)
- Structure and Spectrum of Quiescent Prominences: Energy Balance Spectrum. *J. N. Heasley and Dimitri Mihalas*. **205**, 273, 31-A2 (1976)
- Explosions in Galactic Nuclei and the Formation of Double Radio Sources. *Robert H. Sanders*. **205**, 335, 33-C1 (1976)
- Sun and Comets as Sources in an External Flow. *Max K. Wallis and Murray Dryer*. **205**, 895, 40-F1 (1976)
- The Effect of Adiabatic Focusing upon Charged-Particle Propagation in Random Magnetic Fields. *James A. Earl*. **205**, 900, 40-F6 (1976)
- Non-diffusive Propagation of Cosmic Rays in the Solar System and in Extragalactic Radio Sources. *James A. Earl*. **206**, 301, 46-B9 (1976)
- Compressible Magnetic Field Reconnection: A Slow Wave Model. *Chao-Kung Yang and Bengt U. Ö. Sonnerup*. **206**, 570, 50-D4 (1976)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. I. Formulation of the Problem and Method of Solution. *Telemachos Ch. Mouschovias*. **206**, 753, 53-G1 (1976)
- Mass and Angular Momentum Effluxes of Stellar Winds. *Tyan Yeh*. **206**, 768, 54-A2 (1976)
- The Existence of an Ultrarelativistic Plasma beyond the Alfvén Cylinder of a Pulsar. *Houshang Ardavan*. **206**, 822, 54-E1 (1976)
- Observations of Penumbral Waves in the Photosphere. *Steve Musman, Alan H. Nye, and John H. Thomas*. **206**, L175, 56-G1 (1976)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. II. Results. *Telemachos Ch. Mouschovias*. **207**, 141, 59-E2 (1976)
- Diffusive Hydromagnetic Flow in the Vicinity of a Neutral Point. *Tyan Yeh*. **207**, 837, 69-E7 (1976)
- Accretion onto Magnetized Neutron Stars: Structure and Interchange Instability of a Model Magnetosphere. *Jonathan Arons and Susan M. Lea*. **207**, 914, 70-D3 (1976)
- On Magnetic Buoyancy in the Convection Zone. *Wasaburo Unno and Elizabeth Ribes*. **208**, 222, 76-C13 (1976)
- Conditions for "Storage" of Energetic Particles in the Solar Corona. *Donat G. Wentzel*. **208**, 595, 81-D5 (1976)
- Magnetohydrodynamic Turbulence in Disk Plasmas and Magnetic Field Fluctuations in the Galaxy. *Setsuo Ichimaru*. **208**, 701, 83-G1 (1976)
- Consequences of a Lifetime Greater than 10^7 Years for Galactic Cosmic Rays. *J. R. Jokipii*. **208**, 900, 86-A1 (1976)
- On the Magneto-rotating Polytrope. *M. K. Das and J. N. Tandon*. **209**, 233, 90-D7 (1976)
- Ion and Electron Pulses Observed in the Magnetotail and Rapid Annihilation of Magnetic Field Lines. *C. Y. Fan, G. Gloeckler, and D. Hovestadt*. **209**, 259, 90-F8 (1976)
- Wave Propagation along a Magnetic Tube. *Richard J. Defouw*. **209**, 266, 90-G2 (1976)
- On the Possibility of Nonlinear Phase Bunching Effects in the Extraordinary Mode Decametric Radio Emission of Jupiter. *Michael I. Ratner*. **209**, 945, 101-A8 (1976)
- Magnetic Acceleration of Winds from Solar-Type Stars. *J. W. Belcher and K. B. MacGregor*. **210**, 498, 109-C7 (1976)
- The Pressure and Energy Balance of the Cool Corona Over Sunspots. *Peter V. Foukal*. **210**, 575, 110-B1 (1976)
- Accretion onto Magnetized Neutron Stars: Normal Mode Analysis of the Interchange Instability at the Magnetopause. *Jonathan Arons and Susan M. Lea*. **210**, 792, 113-G3 (1976)
- Hydraulic Concentration of Fields in the Solar Photosphere. IV. Evolution of Fields near Equipartition. *E. N. Parker*. **210**, 810, 114-A7 (1976)
- Hydraulic Concentration of Fields in the Solar Photosphere. V. Dynamical Effects in a Stratified Atmosphere. *E. N. Parker*. **210**, 816, 114-A13 (1976)
- Hyperfine Structure**
Collisionally Induced Hyperfine-Structure Transitions of OH. *Shih-I. Chu*. **206**, 640, 51-C2 (1976)
- Image Processing**
Density Waves in the Disks of Two Spiral Galaxies. *S. E. Strom, E. B. Jensen, and K. M. Strom*. **206**, L11, 47-A10 (1976)
- Digital Restoration of an Image of Betelgeuse. *M. J. McDonnell and R. H. T. Bates*. **208**, 443, 79-F13 (1976)
- On the Power Spectrum of the Solar Granulation at High Wavenumbers. *Blake F. Kinahan*. **209**, 282, 91-A4 (1976)
- Composition Gradients in Spiral Galaxies: A Consistency Check on the Density-Wave Theory. *E. B. Jensen, K. M. Strom, and S. E. Strom*. **209**, 748, 99-A1 (1976)
- Image Processing of Galaxy Photographs. *Halton Arp and Jean Lorre*. **210**, 58, 103-E9 (1976)
- Infrared: General**
Solar Limb Brightening in Submillimeter Wavelengths. *C. Lindsey and H. S. Hudson*. **203**, 753, 11-B5 (1976)
- Far-Infrared Photometry of NGC 1068. *C. M. Telesco, D. A. Harper, and R. F. Loewenstein*. **203**, L53, 8-B8 (1976)
- Radiometric Diameters for an Additional 22 Asteroids. *David Morrison and Clark R. Chapman*. **204**, 934, 26-B8 (1976)
- The Early Infrared Development of Nova Cygni 1975. *J. S. Gallagher and E. P. Ney*. **204**, L35, 17-C7 (1976)
- Surface Compositions of the Satellites of Saturn from Infrared Photometry. *David Morrison, Dale P. Cruikshank, Carl B. Pilcher, and George H. Rieke*. **207**, L213, 72-F9 (1976)
- Infrared Observations and the Structure of the Lower Main Sequence. *J. R. Mould and A. R. Hyland*. **208**, 399, 79-C4 (1976)
- The 10 Micron Silicate Feature in Southern H II Regions. *S. Persson, Jay A. Frogel, and Marc Aaronson*. **208**, 753, 84-C13 (1976)
- Infrared Photometry of RT Lacertae. *E. F. Milone*. **31**, 93, 12-D1 (1976) (Abstr. in **205**, 657, 36-E12)
- Infrared: Sources**
Deep Ice Absorption in a Peculiar Infrared Source. *Martin Cohen*. **203**, 169, 2-G3 (1976)
- Grains of Anomalous Isotopic Composition from Novae. *D. D. Clayton and F. Hoyle*. **203**, 490, 7-C4 (1976)
- Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom*. **203**, L43, 4-F4 (1976)
- Recombination-Line Observations of W3 (OH). I. A Model for OH and H₂O Emission. *V. A. Hughes and M. R. Viner*. **204**, 55, 13-E9 (1976)
- The Role of Dust in NGC 2024. *C. L. Sarazin*. **204**, 68, 13-F8 (1976)
- CO Observations of the Expanding Envelope of IRC +10216. *T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and Robert L. Brown*. **204**, 408, 19-A1 (1976)
- Detection of H₂O Maser Emission from Four Infrared Sources. *Mark Morris and G. R. Knapp*. **204**, 415, 19-A8 (1976)
- One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. *M. W. Werner, I. Gatley, D. A. Harper, E. E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson*. **204**, 420, 19-A13 (1976)
- Radio Continuum Observations of NML Cygni. *P. C. Gregory and E. R. Seaquist*. **204**, 626, 21-C5 (1976)
- The Geometry of VY Canis Majoris Derived from SiO Maser Lines. *David Van Blerkom and Lawrence Auer*. **204**, 775, 24-D13 (1976)
- The Polarization of the Infrared Source CRL 2688 (The Egg Nebula). *Stephen J. Shawl and Massimo Tarenghi*. **204**, L25, 17-B12 (1976)
- Optical and Infrared Spectrophotometry of 18 Markarian Galaxies. *G. Neugebauer, E. E. Becklin, J. B. Oke, and L. Searle*. **205**, 29, 28-C7 (1976)
- The Origin of Ultraviolet and Infrared Continuum Radiation

Infrared: Sources—Continued

- from Seyfert Galaxies. Wayne A. Stein and Daniel W. Weedman. **205**, 44, 28-D8 (1976)
- The Infrared Emission of M17. D. A. Harper, F. J. Low, G. H. Rieke, and Harley A. Thronson, Jr. **205**, 136, 29-D6 (1976)
- OH-IR Stars. I. Physical Properties of Circumstellar Envelopes. Peter Goldreich and Nick Scoville. **205**, 144, 29-E1 (1976)
- OH-IR Stars. II. A Model for the 1612 MHz Masers. Mosche Elitzur, Peter Goldreich, and Nick Scoville. **205**, 384, 33-F13 (1976)
- On the Nature of IRC +10420. Eric R. Craine, William J. Schuster, S. Tapia, and Frederick J. Vrba. **205**, 802, 39-E1 (1976)
- High-Resolution Far-Infrared Observations of the Galactic Center. Paul M. Harvey, Murray F. Campbell, and William F. Hoffman. **205**, L69, 37-B1 (1976)
- Far-Infrared Spectral Observations of M42 and M17. Dennis B. Ward, Brian Dennison, George E. Gull, and Martin Harwit. **205**, L75, 37-B6 (1976)
- Late-Type Giants and Supergiants in the Galactic Center. G. Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams. **205**, L139, 42-C3 (1976)
- A Binary Model for the Infrared Source HD 101584. Roberta M. Humphreys. **206**, 122, 44-C1 (1976)
- Infrared Sources in Molecular Clouds. N. Z. Scoville and John Kwan. **206**, 718, 53-D7 (1976)
- 8 to 13 Micron Spectrophotometry of Compact Sources in NGC 7538. S. P. Willner. **206**, 728, 53-E3 (1976)
- The Sizes of the Nuclei of Galaxies at 10 Microns. G. H. Rieke. **206**, L15, 47-B3 (1976)
- Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths: Erratum. Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L43, 4-F4)
- An Observational Study of the AFCRL Infrared Sky Survey. I. Limited Ground-based Survey and Results from Preliminary Catalog. F. J. Low, R. F. Kurtz, F. J. Vrba, and G. H. Rieke. **206**, L153, 56-E8 (1976)
- An Observational Study of the AFCRL Infrared Sky Survey. II. Present Results of a New Program to Study the Final Catalog. M. J. Lebofsky, S. G. Kleinmann, G. H. Rieke, and F. J. Low. **206**, L157, 56-E11 (1976)
- A Search for Anonymous AFCRL Infrared Sources. R. D. Gehrz and J. A. Hackwell. **206**, L161, 56-F1 (1976)
- A Far-Infrared Map of the Ophiuchus Dark Cloud Region. G. G. Fazio, E. L. Wright, M. Zeilik II, and F. J. Low. **206**, L165, 56-F5 (1976)
- Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner. **207**, 78, 58-G1 (1976)
- CO Observations of the Expanding Envelope of IRC +10216: Erratum. T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and R. L. Brown. **207**, 341, 61-E13 (1976) (Orig. paper in **204**, 408, 19-A1)
- Infrared Emission from A0620-00. S. G. Kleinmann, K. Brecher, and W. H. Ingham. **207**, 532, 65-B1 (1976)
- Infrared Observations of Ices and Silicates in Molecular Clouds. K. M. Merrill, R. W. Russell, and B. T. Soifer. **207**, 763, 68-G1 (1976)
- Infrared Studies of an Ionized Front Region in the Orion Nebula. E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner. **207**, 770, 68-G8 (1976)
- Infrared Spectrophotometry of OH 231.8+4.2 = OH 0739-14. F. C. Gillett and B. T. Soifer. **207**, 780, 69-A4 (1976)
- Prediction of the Diffuse Far-Infrared Flux from the Galactic Plane. G. G. Fazio and F. W. Stecker. **207**, L49, 62-E2 (1976)
- 2-4 Micron Spectrophotometric Observations of the Galactic Center. B. T. Soifer, R. W. Russell, and K. M. Merrill. **207**, L83, 67-B1 (1976)
- The Photometric Histories of CRL 2688 (the "Egg" Nebula) and CRL 618. Elaine W. Gottlieb and Wm. Liller. **207**, L135, 67-E10 (1976)
- Water Vapor Emission from H II Regions and Infrared Stars. B. T. Cato, B. O. Rönnäng, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardasmenos, and J. F. Shanley. **208**, 87, 74-G11 (1976)
- Infrared Observations of Monoceros R2. S. Beckwith, N. J. Evans II, E. E. Becklin, and G. Neugebauer. **208**, 390, 79-B9 (1976)
- Far-Infrared Observations of IRC +10216. M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook. **208**, 396, 79-C1 (1976)
- Far-Infrared Observations of M20 (NGC 6514). E. L. Wright, G. G. Fazio, and F. J. Low. **208**, L87, 82-C12 (1976)
- One-Millimeter Continuum Emission Studies of Four Molecular Clouds. W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer. **209**, 94, 89-A3 (1976)
- On the Origin of the 10 Micron Depressions in the Spectra of Compact Infrared Sources. John Kwan and Nick Scoville. **209**, 102, 89-A12 (1976)
- Model Dust Envelopes around Late-Type Stars. T. W. Jones and K. M. Merrill. **209**, 509, 95-A1 (1976)
- Infrared Polarization of the Galactic Center. R. W. Capps and R. F. Knacke. **210**, 76, 103-G10 (1976)
- The Extreme High-Velocity H₂O Maser Features in W49 N, W51, and Sagittarius B2. Mark Morris. **210**, 100, 104-B6 (1976)
- Infrared Light Variations of Wolf-Rayet Stars. J. A. Hackwell, R. D. Gehrz, J. R. Smith, and D. W. Strecker. **210**, 137, 104-E5 (1976)
- 2-4 Micron Spectrophotometric Observations of Compact H II Regions. B. T. Soifer, R. W. Russell, and K. M. Merrill. **210**, 334, 107-E5 (1976)
- Energy Balance of the Infrared Radiation in Planetary Nebulae. K. V. K. Iyengar and K. S. Krishna Swamy. **210**, 518, 109-D13 (1976)
- Further Measurements of Amorphous Silicates. Kenrick L. Day. **210**, 614, 110-E6 (1976)
- Radiative Transfer in Circumstellar Dust Shells. C. A. Harvel. **210**, 862, 114-E7 (1976)
- Combined Ground and Aircraft Based 1-4 Micron Spectra of LkHα 101. Rodger I. Thompson, Edwin F. Erickson, Fred C. Witteborn, and D. W. Strecker. **210**, L31, 106-D1 (1976)
- The Polarization of BL Lacertae at Visible and Infrared Wavelengths. R. F. Knacke, R. W. Capps, and M. Johns. **210**, L69, 111-B8 (1976)
- The Infrared Source near the Rapid-Burst X-Ray Source MXB 1730-335. D. E. Kleinmann, S. G. Kleinmann, and E. L. Wright. **210**, L83, 111-C10 (1976)
- Water Emission from Infrared Stars. Dale F. Dickinson. **30**, 259, 5-D1 (1976) (Abstr. in **204**, 312, 16-D9)

Infrared: Spectra

- Deep Ice Absorption in a Peculiar Infrared Source. Martin Cohen. **203**, 169, 2-G3 (1976)
- Carbon Star Photometry: CO and 3.2 Micron Bands. Theodore D. Faÿ, Jr. and Stephen T. Ridgway. **203**, 600, 9-D6 (1976)
- Temperature Dependence of Mid-Infrared Silicate Absorption. Kenrick L. Day. **203**, L99, 8-E12 (1976)
- 8200 to 11200 Å Spectra of Peculiar Emission-Line Objects with Infrared Excess. Y. Andrillat and J. P. Swings. **204**, L123, 27-B1 (1976)
- Additional Observations of the Unidentified Infrared Features at 3.28 and 3.4 Microns. G. L. Grasdale and R. R. Joyce. **205**, L11, 32-A12 (1976)

- CRL 2688: A Post-Carbon-Star Object and Probable Planetary Nebula Progenitor. *B. Zuckerman, Daya P. Gilra, B. E. Turner, M. Morris, and Patrick Palmer.* **205**, L15, 32-B2 (1976)
- Brackett- α Emission in the Becklin-Neugebauer Object. *G. L. Grasdalen.* **205**, L83, 37-B13 (1976)
- 1.3 to 2.5 Micron Spectra of MWC 349 and LkHa 101. *Rodger I. Thompson and Michael A. Reed.* **205**, L159, 42-D6 (1976)
- The Near-Infrared Continua of Emission-Line Galaxies. *David A. Allen.* **207**, 367, 63-C1 (1976)
- The Infrared Emission of Upsilon Sagittarii, 89 Herculis, and R Coronae Borealis. *Richard Treffers, Neville J. Woolf, Uwe Fink, and Harold P. Larson.* **207**, 680, 66-E10 (1976)
- Infrared Spectrophotometry of OH 231.8+4.2 = OH 0739-14. *F. C. Gillett and B. T. Soifer.* **207**, 780, 69-A4 (1976)
- The 800-1200 Inverse Centimeter Absorption Spectrum of Jupiter. *Stephen T. Ridgway, L. Wallace, and Gerald R. Smith.* **207**, 1002, 71-C11 (1976)
- Infrared Spectra of the Satellites of Saturn: Identification of Water Ice on Iapetus, Rhea, Dione, and Tethys. *Uwe Fink, Harold P. Larson, T. N. Gautier III, and R. R. Treffers.* **207**, L63, 62-F1 (1976)
- 8-13 Micron Spectrophotometry of NGC 1068. *D. E. Kleinmann, F. C. Gillett, and E. L. Wright.* **208**, 42, 74-D6 (1976)
- Infrared Observations of NGC 5128. *G. L. Grasdalen and R. R. Joyce.* **208**, 317, 78-D3 (1976)
- Far-Infrared Observations of IRC +10216. *M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook.* **208**, 396, 79-C1 (1976)
- Paschen-Alpha in 3C 273. *G. L. Grasdalen.* **208**, L11, 77-A11 (1976)
- 16-25 Micron Spectroscopy of the Trapezium and BN-KL Source in Orion. *W. J. Forrest and B. T. Soifer.* **208**, L129, 87-A1 (1976)
- 16-40 Micron Spectroscopy of the Trapezium and the Kleinmann-Low Nebula in Orion. *W. J. Forrest, J. R. Houck, and R. A. Reed.* **208**, L133, 87-A5 (1976)
- Heterodyne Detection of CO₂ Emission Lines and Wind Velocities in the Atmosphere of Venus. *A. L. Betz, M. A. Johnson, R. A. McLaren, and E. C. Sutton.* **208**, L141, 87-B4 (1976)
- Nonthermal 10 Micron CO₂ Emission Lines in the Atmospheres of Mars and Venus. *M. A. Johnson, A. L. Betz, R. A. McLaren, E. C. Sutton, and C. H. Townes.* **208**, L145, 87-B8 (1976)
- The Spectrum of the Planetary Nebulae NGC 7027 from 0.9 to 2.7 Microns. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III.* **209**, 793, 99-D3 (1976)
- The 1.4-2.7 Micron Spectrum of the Point Source at the Galactic Center. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III.* **209**, L115, 101-E1 (1976)
- Recalibration of the Far-Infrared Brightness Temperatures of the Planets. *Edward L. Wright.* **210**, 250, 105-F7 (1976)
- Spectrophotometric Studies of Young Stars. I. The Cepheus IV Association. *Martin Cohen and Leonard V. Kuhi.* **210**, 365, 107-G8 (1976)
- The Infrared Emission of Markarian 231. *G. H. Rieke.* **210**, L5, 106-B5 (1976)
- Combined Ground and Aircraft Based 1-4 Micron Spectra of LkHa 101. *Rodger I. Thompson, Edwin F. Erickson, Fred C. Witteborn, and D. W. Strecker.* **210**, L31, 106-D1 (1976)
- Infrared Line Emission from the Orion Nebula: Detection of [S III] (18.71 μ) and [O III] (88.35 μ). *J. -P. Baluteau, E. Bussolletti, M. Anderegg, A. F. M. Moorwood, and N. Coron.* **210**, L45, 106-E1 (1976)
- Silicon Monoxide in the 4 Micron Infrared Spectrum of Long-Period Variables. *Kenneth H. Hinkle, Thomas G. Barnes, David L. Lambert, and Reinhard Beer.* **210**, L141, 115-B11 (1976)
- Instabilities**
The Dynamic Instability of Isothermal Relativistic Star Clusters. *K. G. Soffern and E. D. Fackerell.* **203**, 477, 7-B5 (1976)
- Instruments**
The Graphite Crystal X-Ray Spectrometer on OSO-8. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff.* **210**, 805, 114-A2 (1976)
- Interferometry**
Rapid Increase in the Size of 3C 345. *M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart.* **206**, L1, 47-A2 (1976)
- Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. *J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell.* **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. *T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr.* **206**, L107, 52-C12 (1976)
- A Very Small Interstellar Neutral Hydrogen Cloud Observed with VLBI Techniques. *N. H. Dieter, W. J. Welch, and J. D. Romney.* **206**, L113, 52-D3 (1976)
- The Brightness Distribution of 3C 84. *D. N. Fort.* **207**, L155, 72-B6 (1976)
- Digital Restoration of an Image of Betelgeuse. *M. J. McDonnell and R. H. T. Bates.* **208**, 443, 79-F13 (1976)
- 3C 286: A Cosmological QSO? *A. M. Wolfe, J. J. Broderick, J. J. Condon, and K. J. Johnston.* **208**, L47, 82-A2 (1976)
- On the Power Spectrum of the Solar Granulation at High Wavenumbers. *Blake F. Kinahan.* **209**, 282, 91-A4 (1976)
- On the Aggregate Flux of Weak Point Sources at 1404 MHz. *S. J. Goldstein, Jr., A. P. Marscher, and R. T. Rood.* **210**, 321, 107-D4 (1976)
- Observations of a Radio Source in the Nucleus of M81 with Dimensions Less than 1300 Astronomical Units. *K. I. Kellermann, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, and A. Witzel.* **210**, L121, 115-A6 (1976)
- Interplanetary Medium**
Interplanetary Stream Magnetism: Kinematic Effects. *L. F. Burlaga and E. Barouch.* **203**, 257, 3-F13 (1976)
- A Two-Region Model of the Solar Wind Including Azimuthal Velocity. *Mario H. Acuna and Y. C. Whang.* **203**, 720, 10-F7 (1976)
- Observations of Helium in the Interplanetary/Interstellar Wind: The Solar Wake Effect: Erratum. *C. S. Weller and R. R. Meier.* **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 471, 68-F13)
- The Interplanetary Acceleration of Energetic Nucleons. *F. B. McDonald, B. J. Teegarden, J. H. Trainor, T. T. von Rosenzweig, and W. R. Webber.* **203**, L149, 11-G2 (1976)
- Coronal Holes Observed by OSO-7 and Interplanetary Magnetic Sector Structure. *William J. Wagner.* **206**, 583, 50-E5 (1976)
- Galactic Cosmic-Ray Intensity 0.99 to 5.26 Astronomical Units from the Sun. *Michelle F. Thomsen and James A. Van Allen.* **206**, 599, 50-F11 (1976)
- A Theoretical Analysis of the Semiannual Component in the Heliolatitude Dependence of High-Energy Galactic Cosmic Rays. *Giovanni E. Perona and Ester Antonucci.* **207**, 989, 71-B9 (1976)
- Shock Disturbances in a Thermally Conducting Solar Wind. *Philip Rosenau and Shimshon Frankenthal.* **208**, 633, 81-G2 (1976)
- Time Dispersion of Energetic Solar Particles: Unexpected

Interplanetary Medium—Continued

- Velocity and Species Dependence. *J. J. O'Gallagher, D. Hovestadt, B. Klecker, G. Gloeckler, and C. Y. Fan.* **209**, L97, 97-A13 (1976)
- The Effect of Convection and Adiabatic Deceleration on the Time to Maximum Flux in Energetic Solar Particle Events. *M. Scholer.* **209**, L101, 97-B3 (1976)
- Measurements of Large-Scale Density Fluctuations in the Solar Wind Using Dual-Frequency Phase Scintillations. *Richard Woo, Fang-Chou Yang, Kabing W. Yip, and William B. Kendall.* **210**, 568, 110-A8 (1976)
- Structure of Density Fluctuations near the Sun Deduced from Pioneer-6 Spectral Broadening Measurements. *Richard Woo, Fang-Chou Yang, and Akira Ishimaru.* **210**, 593, 110-C13 (1976)
- Evidence for Interplanetary Acceleration of Nucleons in Corotating Interaction Regions. *C. W. Barnes and J. A. Simpson.* **210**, L91, 111-D4 (1976)

Interstellar: Abundances

- Detection and Significance of the Interstellar OH Line $\lambda 3078$. *Richard M. Crutcher and William D. Watson.* **203**, L123, 11-E6 (1976)
- Interstellar Molecular Hydrogen toward Zeta Puppis. *D. C. Morton and H. L. Dinerstein.* **204**, 1, 13-A4 (1976)
- Components in Interstellar Molecular Hydrogen. *Lyman Spitzer, Jr. and Winifred A. Morton.* **204**, 731, 24-A7 (1976)
- Isotopic Abundances in Interstellar Carbon Monosulfide. *R. W. Wilson, A. A. Penzias, P. G. Wannier, and R. A. Linke.* **204**, L135, 27-C1 (1976)
- The Abundance Ratio $^{18}\text{O}/^{16}\text{O}$ in Dense Interstellar Clouds. *P. G. Wannier, R. Lucas, R. A. Linke, P. J. Encrenaz, A. A. Penzias, and R. W. Wilson.* **205**, L169, 42-E1 (1976)
- Observations of Heavy-Element Recombination Lines in the Rho Ophiuchi Dark Cloud at 13 Centimeter Wavelength. *G. R. Knapp, T. B. H. Kuiper, and Robert L. Brown.* **206**, 109, 44-B1 (1976)
- Calcium Abundance Variations in Diffuse Interstellar Clouds. *M. Jura.* **206**, 691, 53-B8 (1976)
- Observations of the $^{12}\text{C}/^{13}\text{C}$ Ratio in Four Galactic Sources of Formaldehyde. *D. N. Matsakis, M. F. Chui, P. F. Goldsmith, and C. H. Townes.* **206**, L63, 47-E11 (1976)
- Interstellar Absorption in Intercloud Regions. II. Detection of the Na I Lines. *L. M. Hobbs.* **206**, L117, 52-D6 (1976)
- Radiative Processes Affecting the Abundance of Interstellar OH. *Wm. Hayden Smith and Ellen G. Zweibel.* **207**, 758, 68-F9 (1976)
- Stellar Production as a Source of ^3He in the Interstellar Medium. *Robert T. Rood, Gary Steigman, and Beatrice M. Tinsley.* **207**, L57, 62-E9 (1976)
- Observations of Interstellar Titanium toward 47 Stars. *Gerald M. Stokes and L. M. Hobbs.* **208**, L95, 82-D5 (1976)
- Upper Limit and Significance of the NH Molecule in Diffuse Interstellar Clouds. *Richard M. Crutcher and William D. Watson.* **209**, 778, 99-C1 (1976)

Interstellar: Magnetic Fields

- The Scattering of Cosmic Rays by Magnetic Bubbles. *R. F. Flewelling and F. V. Coroniti.* **205**, L135, 42-B13 (1976)
- Limits on the Magnetic Field Strength in H I Clouds surrounding the Supernova Remnants HB 21 and W44. *K. C. Turner, L. K. DeNoyer, and J. W. Erkes.* **207**, 59, 58-E9 (1976)
- Circular Polarization Observations of the Interstellar Magnetic Field. *P. G. Martin and Bruce Campbell.* **208**, 727, 84-B1 (1976)
- Note on the Collapse of Magnetic Interstellar Clouds. *Telemachos Ch. Mouschovias and Lyman Spitzer, Jr.* **210**, 326, 107-D11 (1976)

Interstellar: Matter

- Further Studies of Ionization in Interstellar Clouds. *L. M. Hobbs.* **203**, 143, 2-E1 (1976)
- Observations of the Gum Nebula with a Fabry-Perot

- Spectrometer. *R. J. Reynolds.* **203**, 151, 2-E9 (1976)
- The Small-Scale Structure of Interstellar Hydrogen. *Eric W. Greisen.* **203**, 371, 5-G7 (1976)
- The Abundance of Deuterium Relative to Hydrogen in Interstellar Space. *Donald G. York and John B. Rogerson, Jr.* **203**, 378, 6-A1 (1976)
- Neutral Hydrogen in the W41 Region. *Courtney P. Gordon, Kurtiss J. Gordon, and Michael R. Jacobson.* **203**, 593, 9-C13 (1976)
- Observations of Helium in the Interplanetary/Interstellar Wind: The Solar Wake Effect: Erratum. *C. S. Weller and R. R. Meier.* **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 471, 68-F13)
- Electron Temperature in the Elliptical Galaxy NGC 1052. *A. T. Koski and D. E. Osterbrock.* **203**, L49, 8-B5 (1976)
- Temperature Dependence of Mid-Infrared Silicate Absorption. *Kenrick L. Day.* **203**, L99, 8-E12 (1976)
- Small-Scale Structure in High-Velocity Clouds. *Eric W. Greisen and Thomas R. Cram.* **203**, L119, 11-E3 (1976)
- Photoelectric Heating of the Interstellar Gas. *M. Jura.* **204**, 12, 13-B5 (1976)
- Multiple Ionization by Low-Energy Cosmic Rays and the Abundance of Highly Ionized Interstellar Atoms. *William D. Watson.* **204**, 47, 13-E1 (1976)
- H I in Early-Type Galaxies. II. Mass Loss and Galactic Winds. *S. M. Faber and J. S. Gallagher.* **204**, 365, 18-D12 (1976)
- An Almost Complete Survey of 21 Centimeter Radiation for $|b| \geq 10^\circ$. III. The Interdependence of H I, Galaxy Counts, Reddening, and Galactic Latitude. *Carl Heiles.* **204**, 379, 18-E11 (1976)
- Thermal-chemical Instabilities in CO Clouds. *A. E. Glassgold and William D. Langer.* **204**, 403, 18-G9 (1976)
- Components in Interstellar Molecular Hydrogen. *Lyman Spitzer, Jr. and Winifred A. Morton.* **204**, 731, 24-A7 (1976)
- On the Existence of Molecular Hydrogen along Lines of Sight with Low Reddening. *Donald G. York.* **204**, 750, 24-C1 (1976)
- An Analysis of the Interstellar Material in the Line of Sight toward Omicron Persei. *Theodore P. Snow, Jr.* **204**, 759, 24-C11 (1976)
- An Observation of the Diffuse Soft X-Ray/Extreme-Ultraviolet Background. *Webster Cash, Robert Malina, and Robert Stern.* **204**, L7, 17-A8 (1976)
- Ultraviolet Observations of Cool Stars. V. The Local Density of Interstellar Matter. *W. McClintock, R. C. Henry, H. W. Moos, and J. L. Linsky.* **204**, L103, 22-D3 (1976)
- On the Number of Planetary Nebulae in our Galaxy. *D. Alloin, C. Cruz-González, and M. Peimbert.* **205**, 74, 28-G1 (1976)
- Radiative Association in Dense, H₂-containing Interstellar Clouds. *Eric Herbst.* **205**, 94, 29-A7 (1976)
- High-Resolution Profiles of the Diffuse Interstellar Feature at 5780 Å. *Blair D. Savage.* **205**, 122, 29-C7 (1976)
- Mass Loss from Dwarf M Stars through Stellar Flaring. *Gary D. Colman and Simon P. Worden.* **205**, 475, 34-F11 (1976)
- Consequences of a New Hot Component of the Interstellar Medium. *Paul R. Shapiro and George B. Field.* **205**, 762, 39-B1 (1976)
- Rotational Excitation of CO by Collisions with He, H, and H₂ under Conditions in Interstellar Clouds. *Sheldon Green and Patrick Thaddeus.* **205**, 766, 39-B5 (1976)
- Dynamics of CO Molecular Clouds in the Galaxy. *Frank N. Bash and William L. Peters.* **205**, 786, 39-C11 (1976)
- Sun and Comets as Sources in an External Flow. *Max K. Wallis and Murray Dryer.* **205**, 895, 40-F1 (1976)
- Cosmic-Ray Spallative Origin of the Rare Odd-odd Nuclei, Consistent with Light Element Production. *Kem L. Hainebach, David N. Schramm, and J. B. Blake.* **205**, 920, 40-G12 (1976)
- Far-Infrared Spectral Observations of M42 and M17. *Dennis B. Ward, Brian Dennison, George E. Gull, and Martin Harwit.* **205**, L75, 37-B6 (1976)

- Observations of Heavy-Element Recombination Lines in the Rho Ophiuchi Dark Cloud at 13 Centimeter Wavelength. *G. R. Knapp, T. B. H. Kuiper, and Robert L. Brown.* **206**, 109, 44-B1 (1976)
- Secondary Cosmic-Ray e^\pm from 1 to 100 GeV in the Upper Atmosphere and Interstellar Space, and Interpretation of a Recent e^+ Flux Measurement. *Charles D. Orth and Andrew Buffington.* **206**, 312, 46-C7 (1976)
- Deviation from a Maxwellian Velocity Distribution in Regions of Interstellar Molecular Hydrogen. *Robert J. Gould and Martin Levy.* **206**, 435, 49-A5 (1976)
- Enhanced Effects of Starlight on the Interstellar Medium. *Humberto Gerola and Robert A. Schwartz.* **206**, 452, 49-B9 (1976)
- Planetary Nebulae, Supernova Remnants, and the Interstellar Medium. *E. E. Salpeter.* **206**, 673, 53-A4 (1976)
- The Gum Nebula: An Old Supernova Remnant Ionized by $Z\alpha$ Puppis and Gamma Velorum? *R. J. Reynolds.* **206**, 679, 53-A10 (1976)
- Temperature Fluctuations in Very Small Interstellar Grains. *E. M. Purcell.* **206**, 685, 53-B2 (1976)
- Calcium Abundance Variations in Diffuse Interstellar Clouds. *M. Jura.* **206**, 691, 53-B8 (1976)
- The Irregularity Spectrum in Interstellar Space. *L. C. Lee and J. R. Jokipii.* **206**, 735, 53-E11 (1976)
- Strong Scintillations in Astrophysics. IV. Cross-Correlation between Different Frequencies and Finite Bandwidth Effects. *L. C. Lee.* **206**, 744, 53-F6 (1976)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. I. Formulation of the Problem and Method of Solution. *Telemachos Ch. Mouschovias.* **206**, 753, 53-G1 (1976)
- A Reinvestigation of the Scattering Halo of M82 Based on Polarimetric and Isophotal Maps. *Gary D. Schmidt, J. R. P. Angel, and R. H. Cromwell.* **206**, 888, 55-C1 (1976)
- A Very Small Interstellar Neutral Hydrogen Cloud Observed with VLBI Techniques. *N. H. Dieter, W. J. Welch, and J. D. Romney.* **206**, L113, 52-D3 (1976)
- Interstellar Absorption in Intercloud Regions. II. Detection of the Na I Lines. *L. M. Hobbs.* **206**, L117, 52-D6 (1976)
- A Far-Infrared Map of the Ophiuchus Dark Cloud Region. *G. G. Fazio, E. L. Wright, M. Zeilik II, and F. J. Low.* **206**, L165, 56-F5 (1976)
- Comparison of Optical Radio Column-Density Measurements toward Omicron Persei and Zeta Ophiuchi. *Richard M. Crutcher.* **206**, L171, 56-F10 (1976)
- Systematic Variations in the Wavelength Dependence of Interstellar Circular Polarization. *P. G. Martin and J. R. P. Angel.* **207**, 126, 59-D1 (1976)
- H₂ Recombination on Interstellar Grains. *Michael J. Barlow and Joseph Silk.* **207**, 131, 59-D6 (1976)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. II. Results. *Telemachos Ch. Mouschovias.* **207**, 141, 59-E2 (1976)
- Effects of Stellar Particle Irradiation on Interstellar Grains. *S. J. Czyzak, J. M. Meese, and J. J. Santiago.* **207**, 425, 63-G5 (1976)
- Upper Limits to the Interstellar Radiation Field between 775 and 1050 Å. *Francesco Paresce and Stuart Bowyer.* **207**, 432, 64-A1 (1976)
- Time-dependent Radiative Cooling of a Hot, Diffuse Cosmic Gas, and the Emergent X-Ray Spectrum. *Paul R. Shapiro and Robert T. Moore.* **207**, 460, 64-C1 (1976)
- Infrared Observations of Ices and Silicates in Molecular Clouds. *K. M. Merrill, R. W. Russell, and B. T. Soifer.* **207**, 763, 68-G1 (1976)
- Infrared Studies of an Ionized Front Region in the Orion Nebula. *E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner.* **207**, 770, 68-G8 (1976)
- Quantum Effects in the Formation of CH⁺ by Radiative Association. *H. Abgrall, A. Guszt-Suzor, and E. Roueff.* **207**, L69, 62-F6 (1976)
- Carbon Monoxide in the Galaxy. II. The Thickness of the Galactic CO Layer. *W. B. Burton and M. A. Gordon.* **207**, L189, 72-D11 (1976)
- Dynamical Response of the Interstellar Medium to Explosions at the Galactic Center. *Richard J. Defouw.* **208**, 52, 74-E2 (1976)
- Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXV. Diffuse Galactic Light in the 1500–4200 Å Region and the Scattering Properties of Interstellar Dust Grains. *C. F. Lillie and A. N. Witt.* **208**, 64, 74-F1 (1976)
- Studies of the Dusty H II Region NGC 2024. *Bruce Balick.* **208**, 75, 74-F12 (1976)
- Oscillation and Collapse of Interstellar Clouds. *Stephen V. Weber.* **208**, 113, 75-C1 (1976)
- Abundance Gradients in Extragalactic H II Regions and Internal Absorption by Dust. *Craig L. Sarazin.* **208**, 323, 78-D9 (1976)
- Carbon Monoxide in the Galaxy. I. The Radial Distribution of CO, H₂, and Nucleons. *M. A. Gordon and W. B. Burton.* **208**, 346, 78-F4 (1976)
- The Prospects for Astronomical Optical Rotary Dispersion Studies. *P. T. Giguere, L. E. Snyder, and F. S. Richardson.* **208**, 365, 78-G10 (1976)
- Far-Infrared Observations of IRC +10216. *M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook.* **208**, 396, 79-C1 (1976)
- On the Extragalactic Interpretation of High-Velocity H I Clouds. *David Eichler.* **208**, 694, 83-F7 (1976)
- Observations of Interstellar Helium with a Gas Absorption Cell: Limits on the Bulk Velocity of the Interstellar Medium. *Jay Freeman, Francesco Paresce, Stuart Bowyer, and Michael Lampton.* **208**, 747, 84-C7 (1976)
- On the Extinction Law in the Carina Nebula. *William Herbst.* **208**, 923, 86-C1 (1976)
- An Almost Complete Survey of 21 Centimeter Line Radiation for $b \geq 10^\circ$. VI. Energetic Expanding H I Shells. *Carl Heiles.* **208**, L137, 87-A9 (1976)
- Neutral Hydrogen in the Direction of the Small Magellanic Cloud and the Limits on an Extragalactic Soft X-Ray Flux. *D. McCammon, S. S. Meyer, W. T. Sanders, and F. O. Williamson.* **209**, 46, 88-D9 (1976)
- Radiation Transport in Dense Interstellar Dust Clouds. II. Infrared Emission from Molecular Clouds Associated with H II Regions. *Chun Ming Leung.* **209**, 75, 88-F12 (1976)
- Reddening of Planetary Nebulae: NGC 2392. *David M. Zipoy.* **209**, 108, 89-B4 (1976)
- A Survey of Ionized Hydrogen in the Plane of the Galaxy. *Felix J. Lockman.* **209**, 429, 94-B6 (1976)
- H I in Early-Type Galaxies. III. Observations of S0 Galaxies. *Bruce Balick, S. M. Faber, and J. S. Gallagher.* **209**, 710, 98-E6 (1976)
- Observations of CO Emission from Diffuse Interstellar Clouds. *G. R. Knapp and M. Jura.* **209**, 782, 99-C5 (1976)
- The Distance-Reddening Law for Nova Cygni (1975) = V1500 Cygni. *R. E. Schild.* **209**, L35, 92-C7 (1976)
- Interaction of the Vela Supernova Remnant with the Cloudy Interstellar Medium. *Edward B. Jenkins, Joseph Silk, and George Wallerstein.* **209**, L87, 97-A4 (1976)
- The Value of R in Monoceros. *David G. Turner.* **210**, 65, 103-F13 (1976)
- The Dynamical Interaction of a Newly Formed Protostar with Infalling Matter: The Origin of Interstellar Grains. *John Robert Burke and Joseph Silk.* **210**, 341, 107-E12 (1976)
- Further Measurements of Amorphous Silicates. *Kenrick L. Day.* **210**, 614, 110-E6 (1976)
- The Dynamical Interaction between Galaxies and Intracluster Gas in Clusters of Galaxies. *Susan M. Lea and David S. De*

Interstellar Matter—Continued

- Young. **210**, 647, 112-C6 (1976)
- The Galactic Distribution of Interstellar Absorption as Determined from the *Celestcope* Catalog of Ultraviolet Stellar Observations and a New Catalog of *UBV*, *H*-Beta Photoelectric Observations. William A. Deutschman, Robert J. Davis, and Rudolph E. Schild. **30**, 97, 3-A2 (1976) (Abstr. in **203**, 284, 4-A12)
- The Ionization of a Low-Density Intercloud Medium by a Single O Star. Bruce G. Elmegreen. **32**, 147, 23-G1 (1976) (Abstr. in **208**, 273, 76-G11)
- Ultraviolet Absorption Lines Associated with the Vela Supernova Remnant. Edward B. Jenkins, Joseph Silk, and George Wallerstein. **32**, 681, 43-C1 (1976) (Abstr. in **210**, 621, 110-E14)
- Interstellar: Molecules**
- Inversion of the OH 1720 MHz Line. Moshe Elitzur. **203**, 124, 2-C9 (1976)
- Optical and Millimeter-Wave Observations of the M8 Region. Charles J. Lada, T. R. Gull, C. A. Gottlieb, and E. W. Gottlieb. **203**, 159, 2-F2 (1976)
- Observations of Near-Infrared C₂ Bands in the Spectra of Carbon Stars: Erratum. Daya P. Gilra. **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 145, 51-E1)
- Interstellar H₂: The Population of Excited Rotational States and the Infrared Response to Ultraviolet Radiation. J. H. Black and A. Dalgarno. **203**, L32, 2-D3 (1976)
- CO Observations of the Bright-rimmed Cloud B35. Charles J. Lada and John H. Black. **203**, L75, 8-D1 (1976)
- Detection and Significance of the Interstellar OH Line λ 3078. Richard M. Crutcher and William D. Watson. **203**, L123, 11-E6 (1976)
- Interstellar Molecular Hydrogen toward Zeta Puppis. D. C. Morton and H. L. Dinerstein. **204**, 1, 13-A4 (1976)
- OH and H₂O Masers in the Monoceros-R2 Molecular Cloud. G. R. Knapp and R. L. Brown. **204**, 21, 13-C1 (1976)
- Isotope Abundances in Interstellar Molecular Clouds. P. G. Wannier, A. A. Penzias, R. A. Linke, and R. W. Wilson. **204**, 26, 13-C6 (1976)
- Observation of the 616–515 Transitions of Acetaldehyde in Sagittarius B2. W. Gilmore, M. Morris, D. R. Johnson, F. J. Lovas, B. Zuckerman, B. E. Turner, and P. Palmer. **204**, 43, 13-D10 (1976)
- Recombination-Line Observations of W3 (OH). I. A Model for OH and H₂O Emission. V. A. Hughes and M. R. Viner. **204**, 55, 13-E9 (1976)
- Thermal-chemical Instabilities in CO Clouds. A. E. Glassgold and William D. Langer. **204**, 403, 18-G9 (1976)
- CO Observations of the Expanding Envelope of IRC +10216. T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and Robert L. Brown. **204**, 408, 19-A1 (1976)
- Detection of H₂O Maser Emission from Four Infrared Sources. Mark Morris and G. R. Knapp. **204**, 415, 19-A8 (1976)
- Components in Interstellar Molecular Hydrogen. Lyman Spitzer, Jr. and Winifred A. Morton. **204**, 731, 24-A7 (1976)
- On the Existence of Molecular Hydrogen along Lines of Sight with Low Reddening. Donald G. York. **204**, 750, 24-C1 (1976)
- The Unusual H₂O Maser Source near Herbig-Haro Object Number 11. K. Y. Lo, M. Morris, J. M. Moran, and A. D. Haschick. **204**, L21, 17-B8 (1976)
- The Detection of Interstellar OH Absorption in the Zeta Ophiuchi Cloud. Theodore P. Snow, Jr. **204**, L127, 27-B6 (1976)
- H₂CO Emission at 2-Millimeters in Dark Clouds. N. J. Evans II and M. L. Kutner. **204**, L131, 27-B10 (1976)
- Isotopic Abundances in Interstellar Carbon Monosulfide. R. W. Wilson, A. A. Penzias, P. G. Wannier, and R. A. Linke. **204**, L135, 27-C1 (1976)
- HCN, X-ogen (HCO⁺), and U90.66 Emission Spectra from L134. L. E. Snyder and J. M. Hollis. **204**, L139, 27-C4 (1976)
- The Microwave Spectrum of Hydrogen Isocyanide. R. J. Saykally, P. G. Szanto, T. G. Anderson, and R. C. Woods. **204**, L143, 27-C8 (1976)
- Cyanoacetylene in Dense Interstellar Clouds. M. Morris, B. E. Turner, Patrick Palmer, and B. Zuckerman. **205**, 82, 28-G9 (1976)
- Rotational Excitation of CO by Collisions with He, H, and H₂ under Conditions in Interstellar Clouds. Sheldon Green and Patrick Thaddeus. **205**, 766, 39-B5 (1976)
- Identification of Interstellar X-ogen as HCO⁺. W. P. Kraemer and G. H. F. Dierksen. **205**, L97, 37-C11 (1976)
- Laboratory Microwave Spectrum and Rest Frequencies of the N₂H⁺ Ion. Richard J. Saykally, Thomas A. Dixon, Thomas G. Anderson, Peter G. Szanto, and R. Claude Woods. **205**, L101, 37-D1 (1976)
- The Absorption-Line Spectrum of the BL Lacertae Object AO 0235+164. E. M. Burbidge, R. D. Caldwell, Harding E. Smith, J. Liebert, and H. Spinrad. **205**, L117, 42-A10 (1976)
- Measurement and Significance of the Reaction ¹³C⁺ + ¹²CO \rightleftharpoons ¹²C⁺ + ¹³CO for Alteration of the ¹³C/¹²C Ratio in Interstellar Molecules. William D. Watson, Vincent G. Anicich, and Wesley T. Huntress, Jr. **205**, L165, 42-D11 (1976)
- The Abundance Ratio ¹⁷O/¹⁸O in Dense Interstellar Clouds. P. G. Wannier, R. Lucas, R. A. Linke, P. J. Encrenaz, A. A. Penzias, and R. W. Wilson. **205**, L169, 42-E1 (1976)
- Detection of the Heavy Interstellar Molecule Cyanodiacetylene. L. W. Avery, N. W. Broten, J. M. MacLeod, T. Oka, and H. W. Kroto. **205**, L173, 42-E4 (1976)
- Observations of Interstellar Silicon Monoxide. Dale F. Dickinson, C. A. Gottlieb, Elaine W. Gottlieb, and M. M. Litvak. **206**, 79, 43-F12 (1976)
- Abundances of Simple Oxygen-bearing Molecules and Ions in Interstellar Clouds. A. E. Glassgold and William D. Langer. **206**, 85, 43-G4 (1976)
- Submillimeter Observations of NGC 2024, OMC-2, and Mon R-2. H. S. Hudson and B. T. Soifer. **206**, 100, 44-A5 (1976)
- Deviation from a Maxwellian Velocity Distribution in Regions of Interstellar Molecular Hydrogen. Robert J. Gould and Martin Levy. **206**, 435, 49-A5 (1976)
- Accurate Positions of OH Emission Sources. N. J. Evans II, Richard M. Crutcher, and W. J. Wilson. **206**, 440, 49-A10 (1976)
- CO Observations of NGC 1579 (S222) and S239. G. R. Knapp, T. B. H. Kuiper, S. L. Knapp, and Robert L. Brown. **206**, 443, 49-A13 (1976)
- Calculations of the Lower Electronic States of CH₃⁺: A Postulated Intermediate in Interstellar Reactions. R. J. Blint, R. F. Marshall, and William D. Watson. **206**, 627, 51-A13 (1976)
- The Carbon Monoxide Abundance in Interstellar Clouds. William Langer. **206**, 699, 53-C2 (1976)
- H₂O Maser Emission Associated with T Tauri and Other Regions of Star Formation. G. R. Knapp and Mark Morris. **206**, 713, 53-D2 (1976)
- Observations of the ¹²C/¹³C Ratio in Four Galactic Sources of Formaldehyde. D. N. Matsakis, M. F. Chui, P. F. Goldsmith, and C. H. Townes. **206**, L63, 47-E11 (1976)
- Comparison of Optical Radio Column-Density Measurements toward Omicron Persei and Zeta Ophiuchi. Richard M. Crutcher. **206**, L171, 56-F10 (1976)
- Interstellar COH⁺. Eric Herbst, Joseph M. Norbeck, Phillip R. Certain, and William Klemperer. **207**, 110, 59-B11 (1976)
- H₂O and 22 GHz Continuum Observations of M17. Charles J. Lada, Dale F. Dickinson, C. A. Gottlieb, and E. L. Wright. **207**, 113, 59-C1 (1976)
- 3 Millimeter and 350 Micron Continuum Observations of the DR-21 and Sagittarius B2 Regions. G. Righini, M. Simon, and R. R. Joyce. **207**, 119, 59-C7 (1976)
- CO Observations of the Expanding Envelope of IRC +10216:

- Erratum. T. B. H. Kuiper, G. R. Knapp, S. L. Knapp, and R. L. Brown. **207**, 341, 61-E13 (1976) (Orig. paper in **204**, 408, 19-A1)
- Predissociation Effects in the A, B, and C States of CH and the Interstellar Formation Rate of CH Inverse Predissociation. J. Brzozowski, P. Bunker, N. Elander, and P. Erman. **207**, 414, 63-F8 (1976)
- Molecular Hydrogen in Interstellar Dark Clouds. Mark Allen and G. Wilse Robinson. **207**, 745, 68-E10 (1976)
- Infrared Observations of Ices and Silicates in Molecular Clouds. K. M. Merrill, R. W. Russell, and B. T. Soifer. **207**, 763, 68-G1 (1976)
- Detection of Molecular Hydrogen Quadrupole Emission in the Orion Nebula. T. N. Gautier III, Uwe Fink, Richard R. Treffers, and Harold P. Larson. **207**, L129, 67-E3 (1976)
- Carbon Monoxide in the Galaxy. II. The Thickness of the Galactic CO Layer. W. B. Burton and M. A. Gordon. **207**, L189, 72-D11 (1976)
- Water Vapor Emission from H II Regions and Infrared Stars. B. T. Cato, B. O. Rönnäng, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardasmenos, and J. F. Shanley. **208**, 87, 74-G11 (1976)
- Laboratory Studies of Ion-neutral Reactions in Interstellar Regions: Gas-Phase Equilibrium between HCN and NH₃ in Dense Clouds. W. T. Huntress, Jr. and V. G. Anicich. **208**, 237, 76-E1 (1976)
- Laboratory Microwave Spectrum of Cyanamide. Donald R. Johnson, Richard D. Suenram, and Walter J. Lafferty. **208**, 245, 76-E9 (1976)
- Carbon Monoxide in the Galaxy. I. The Radial Distribution of CO, H₂, and Nucleons. M. A. Gordon and W. B. Burton. **208**, 346, 78-F4 (1976)
- The Prospects for Astronomical Optical Rotary Dispersion Studies. P. T. Giguere, L. E. Snyder, and F. S. Richardson. **208**, 365, 78-G10 (1976)
- Infrared Observations of Monoceros R2. S. Beckwith, N. J. Evans II, E. E. Becklin, and G. Neugebauer. **208**, 390, 79-B9 (1976)
- Far-Infrared Observations of IRC +10216. M. F. Campbell, J. H. Elias, D. Y. Gezari, P. M. Harvey, W. F. Hoffman, H. S. Hudson, G. Neugebauer, B. T. Soifer, M. W. Werner, and W. E. Westbrook. **208**, 396, 79-C1 (1976)
- H₂ in Expanding Circumstellar Shells. David Hollenbach, Shih-I Chu, and Richard McCray. **208**, 458, 79-G13 (1976)
- Radiation Transport and Non-LTE Analysis of Interstellar Molecular Lines. I. Carbon Monoxide. Chun Ming Leung and Harvey S. Liszt. **208**, 732, 84-B6 (1976)
- The 10 Micron Silicate Feature in Southern H II Regions. S. Persson, Jay A. Frogel, and Marc Aaronson. **208**, 753, 84-C13 (1976)
- Collisional Excitation of A Doublet Transitions in CH and OH. M. Bertojo, A. C. Cheung, and C. H. Townes. **208**, 914, 86-B6 (1976)
- Radio Detection of the Interstellar Formyl Radical. L. E. Snyder, J. M. Hollis, and B. L. Ulich. **208**, L91, 82-D1 (1976)
- Detection, Identification, and Observations of Interstellar H¹³CO⁺. L. E. Snyder, J. M. Hollis, F. J. Lovas, and B. L. Ulich. **209**, 67, 88-F2 (1976)
- One-Millimeter Continuum Emission Studies of Four Molecular Clouds. W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer. **209**, 94, 89-A3 (1976)
- Fourier Analysis of Steady-State Reaction Schemes for Interstellar Molecules. P. J. Kuntz, G. F. Mitchell, and J. Ginsburg. **209**, 116, 89-B12 (1976)
- H₂ Molecules and the Intercloud Medium. Jesse K. Hill and David J. Hollenbach. **209**, 445, 94-C8 (1976)
- A Dense Molecular Cloud in the OMC-1/OMC-2 Region. Marc L. Kutner, Neal J. Evans II, and Kenneth D. Tucker. **209**, 452, 94-D1 (1976)
- Colliding Clouds and Star Formation in NGC 1333. Robert B. Loren. **209**, 466, 94-E1 (1976)
- Ion Reactions with Atomic Oxygen and Atomic Nitrogen of Astrophysical Importance. F. C. Fehsenfeld. **209**, 638, 96-C12 (1976)
- Millimeter Emission Lines in Orion A. Frank J. Lovas, Donald R. Johnson, David Buhl, and Lewis E. Snyder. **209**, 770, 99-B6 (1976)
- Upper Limit and Significance of the NH Molecule in Diffuse Interstellar Clouds. Richard M. Crutcher and William D. Watson. **209**, 778, 99-C1 (1976)
- Observations of CO Emission from Diffuse Interstellar Clouds. G. R. Knapp and M. Jura. **209**, 782, 99-C5 (1976)
- Radio Detection of Interstellar DCO⁺. J. M. Hollis, L. E. Snyder, F. J. Lovas, and D. Buhl. **209**, L83, 97-A1 (1976)
- The 1.4-2.7 Micron Spectrum of the Point Source at the Galactic Center. Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III. **209**, L115, 101-E1 (1976)
- High-Velocity Gas in the Orion Infrared Nebula. B. Zuckerman, T. B. H. Kuiper, and E. N. Rodriguez Kuiper. **209**, L137, 101-F13 (1976)
- Evidence for Weak Maser Action in Interstellar Cyanodiacetylene. N. W. Broten, J. M. MacLeod, T. Oka, L. W. Avery, J. W. Brooks, R. X. McGee, and Lynette M. Newton. **209**, L143, 101-G6 (1976)
- The Extreme High-Velocity H₂O Maser Features in W49 N, W51, and Sagittarius B2. Mark Morris. **210**, 100, 104-B6 (1976)
- Interstellar Cloud Evolution and the Abundance of Formaldehyde. William D. Langer. **210**, 328, 107-D13 (1976)
- The Relation between Carbon Monoxide Emission and Visual Extinction in Cloud L134. K. D. Tucker, R. L. Dickman, P. J. Encrenaz, and M. L. Kutner. **210**, 679, 112-E13 (1976)
- The Nature of the Broad Molecular Line Emission at the Kleinmann-Low Nebula. John Kwan and Nick Scoville. **210**, L39, 106-D8 (1976)
- Detection of Interstellar Vibrationally Excited Cyanoacetylene. F. O. Clark, R. D. Brown, P. D. Godfrey, J. W. V. Storey, and D. R. Johnson. **210**, L139, 115-B9 (1976)
- Absolute Calibration of Millimeter-Wavelength Spectral Lines. B. L. Ulich and R. W. Haas. **30**, 247, 5-C1 (1976) (Abstr. in **202**, 312, 16-D9)
- Radio Observations of Interstellar CH. I. O. E. H. Rydbeck, E. Kollberg, A. Hjalmarsen, A. Sume, J. Elldér, and W. M. Irvine. **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- Detailed Observations of the M17 Molecular Cloud Complex. Charles J. Lada. **32**, 603, 33-C1 (1976) (Abstr. in **210**, 622, 110-F1)
- Ultraviolet Absorption Lines Associated with the Vela Supernova Remnant. Edward B. Jenkins, Joseph Silk, and George Wallerstein. **32**, 681, 43-C1 (1976) (Abstr. in **210**, 621, 110-E14)
- Ionization: see Atomic Processes**
- Laboratory Spectra**
- Investigation of Forbidden Transitions in Argon Ions. N. W. Jalufka. **203**, 279, 4-A7 (1976)
- Experimental Oscillator Strengths in the C₂ (A ¹Π_u-X ¹Σ_g⁺) Phillips Band System. F. Roux, D. Cerny, and J. D'Incan. **204**, 940, 26-C1 (1976)
- The Microwave Spectrum of Hydrogen Isocyanide. R. J. Saykally, P. G. Szanto, T. G. Anderson, and R. C. Woods. **204**, L143, 27-C8 (1976)
- Laboratory Microwave Spectrum and Rest Frequencies of the N₂H⁺ Ion. Richard J. Saykally, Thomas A. Dixon, Thomas G. Anderson, Peter G. Szanto, and R. Claude Woods. **205**, L101, 37-D1 (1976)
- The Rotation-Vibration Spectrum of HD: Wavelength and Intensity Measurements of the 3-0, 4-0, 5-0, and 6-0 Electric Dipole Bands. A. R. W. McKellar, W. Goetz, and D. A. Ramsay. **207**, 663, 66-D6 (1976)

Laboratory Spectra—Continued

- Absolute Oscillator Strengths for Chromium and the Chromium Solar Abundance. *Thomas M. Bieniewski*. **208**, 228, 76-D5 (1976)
- Laboratory Microwave Spectrum of Cyanamide. *Donald R. Johnson, Richard D. Suenram, and Walter J. Lafferty*. **208**, 245, 76-E9 (1976)
- The Broadening of the Calcium Resonance Line in a High-Temperature Helium Atmosphere. *R. D. Driver and J. L. Snider*. **208**, 518, 80-E7 (1976)
- Iron Hydride: Laboratory Studies and Solar Identification. *P. K. Carroll, P. McCormack, and S. O'Connor*. **208**, 903, 86-A4 (1976)
- On the 6825 Å Band of Methane. *Barry L. Lutz and Tobias Owen*. **208**, L99, 82-D9 (1976)
- Rotational Analysis of the First Negative System of $^{12}\text{C } ^{18}\text{O}^+$. *J. D. Janjić and D. S. Pešić*. **209**, 642, 96-D3 (1976)
- Further Measurements of Amorphous Silicates. *Kenrick L. Day*. **210**, 614, 110-E6 (1976)
- Oscillator Strengths in the Mg Isoelectronic Sequence. *G. A. Victor, R. F. Stewart, and C. Laughlin*. **31**, 237, 15-D1 (1976) (Abstr. in **206**, 343, 46-E11)
- The $^1[\text{X}^+ \Sigma^+]$ System of Zirconium Oxide. *John G. Phillips and Sumner P. Davis*. **32**, 537, 32-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- Line Formation**
- Probabilistic Radiative Transfer: An Integral-Equation Approach. *R. Grant Athay*. **204**, 160, 14-G1 (1976)
- Resonance-Line Transfer with Partial Redistribution. VIII. Solution in the Comoving Frame for Moving Atmospheres. *Dimitri Mihalas, R. A. Shine, P. B. Kunasz, and D. G. Hummer*. **205**, 492, 35-A1 (1976)
- Hydrogen and Helium Lines in Theoretical Model of Scorpius X-1 and Cygnus X-2. *Mordehai Milgrom and J. I. Katz*. **205**, 545, 35-D12 (1976)
- Excitation and Ionization of Helium in the Solar Atmosphere. *Eugene H. Avrett, Jorge E. Vernazza, and Jeffrey L. Linsky*. **207**, L199, 72-E7 (1976)
- Sodium Line Formation in Arcturus. II. The Use of Empirical and Opacity Sampling Models and the Nature of Partial Redistribution Effects. *Walter L. Kelch and Robert W. Milkey*. **208**, 428, 79-E12 (1976)
- Lyman-Alpha Emission from Nonthermal Proton Beams. *F. Q. Orrall and J. B. Zirker*. **208**, 618, 81-F1 (1976)
- Redshift Doublets in QSO Absorption Spectra. *Alan H. Karp*. **210**, 279, 107-A4 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. IV. Frequency-dependent Source Functions for Scattering by Atoms and Electrons. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer*. **210**, 419, 108-D8 (1976)
- Formation of the 0.511 MeV line in Solar Flares. *Carol Jo Crannell, Glenn Joyce, Reuven Ramaty, and Carl Wernitz*. **210**, 582, 110-C2 (1976)
- Line Identifications**
- The Solar Spectrum: Wavelengths and Identifications from 160 to 770 Angstroms. *W. E. Behring, L. Cohen, U. Feldman, and G. A. Doschek*. **203**, 527, 7-E11 (1976)
- Laboratory Band Strengths of Methane and Their Application to the Atmospheres of Jupiter, Saturn, Uranus, Neptune, and Titan. *Barry L. Lutz, Tobias Owen, and Robert D. Cess*. **203**, 541, 7-G4 (1976)
- Detection of a He I 4517 Å Absorption Feature in the DB White Dwarf GD 190. *James Liebert, E. A. Beaver, J. W. Robertson, and P. A. Strittmatter*. **204**, L119, 27-A10 (1976)
- Detection of Ionized Sulfur in the Jovian Magnetosphere. *Irena Kupo, Yuri Mekler, and Aharon Eviatar*. **205**, L51, 32-E3 (1976)
- A Survey of Peculiar and Metallic-lined A Stars for the Actinides. *Charles R. Cowley, G. C. L. Aikman, and M. R. Hartoog*. **206**, 196, 45-A10 (1976)
- Spectra and Fabry-Perot Interferometry of AG Carinae and the Nebula. *Hugh M. Johnson*. **206**, 469, 49-C12 (1976)
- A New $^1\Sigma^-1\Sigma$ System of the ZrO Molecule. *John G. Phillips and Sumner P. Davis*. **206**, 632, 51-B4 (1976)
- Laboratory Microwave Spectrum of Cyanamide. *Donald R. Johnson, Richard D. Suenram, and Walter J. Lafferty*. **208**, 245, 76-E9 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. *Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey*. **208**, 468, 80-A9 (1976)
- Iron Hydride: Laboratory Studies and Solar Identification. *P. K. Carroll, P. McCormack, and S. O'Connor*. **208**, 903, 86-A4 (1976)
- On the 6825 Å Band of Methane. *Barry L. Lutz and Tobias Owen*. **208**, L99, 82-D9 (1976)
- Detection, Identification, and Observations of Interstellar H^{13}CO^+ . *L. E. Snyder, J. M. Hollis, F. J. Lovas, and B. L. Ulich*. **209**, 67, 88-F2 (1976)
- Emission Lines in the Wings of Ca II H and K. I. Initial Solar Observations and Implications. *Richard C. Canfield and Robert E. Stencel*. **209**, 618, 96-B3 (1976)
- Revised Classification of Mg II Levels between 59 and 63 eV. *G. Mehlman, A. W. Weiss, and J. M. Esteve*. **209**, 640, 96-D1 (1976)
- Rotational Analysis of the First Negative System of $^{12}\text{C } ^{18}\text{O}^+$. *J. D. Janjić and D. S. Pešić*. **209**, 642, 96-D3 (1976)
- Millimeter Emission Lines in Orion A. *Frank J. Lovas, Donald R. Johnson, David Buhl, and Lewis E. Snyder*. **209**, 770, 99-B6 (1976)
- The Spectrum of the Planetary Nebulae NGC 7027 from 0.9 to 2.7 Microns. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III*. **209**, 793, 99-D3 (1976)
- The Emission-Line Spectra of Nine Newly Discovered, Optically Selected Quasars with $2.5 < z < 3.1$. *Patrick S. Osmer and Malcolm G. Smith*. **210**, 267, 105-G10 (1976)
- Detection of Nuclear Gamma Rays from Centaurus A. *R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes*. **210**, 631, 112-B4 (1976)
- Identification of Novel Molecules in the Spectrum of 19 Piscium. *Robert S. Wojslaw and Benjamin F. Peery, Jr.* **31**, 75, 12-B1 (1976) (Abstr. in **205**, 656, 36-E11)
- The Spectrum of the Peculiar A Star HD 25354. *Diane M. Pyper*. **31**, 249, 15-E1 (1976) (Abstr. in **206**, 343, 46-E11)
- The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175–1940 Å. *G. A. Doschek, U. Feldman, M. E. VanHoosier, and J. -D. F. Bartoe*. **31**, 417, 18-E1 (1976) (Abstr. in **206**, 964, 56-A13)
- The Ultraviolet Spectrum of Alpha Lyrae. *Rosanna Faragginana, Margherita Hack, and David S. Leckrone*. **32**, 501, 31-B1 (1976) (Abstr. in **209**, 648, 96-D9)
- The $^1[\text{X}^+ \Sigma^+]$ System of Zirconium Oxide. *John G. Phillips and Sumner P. Davis*. **32**, 537, 32-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- Yttrium, Barium, and the Lanthanides in Ap and Am Stars. *Charles R. Cowley*. **32**, 631, 33-E1 (1976) (Abstr. in **210**, 621, 110-E14)
- Line Profiles**
- Further Studies of Ionization in Interstellar Clouds. *L. M. Hobbs*. **203**, 143, 2-E1 (1976)
- Profiles of the [O III] Nebular Lines in Two Bright Seyfert Galaxies. *J. W. Glaspey, J. A. Eilek, G. G. Fahlman, and J. R. Auman*. **203**, 335, 5-D13 (1976)
- P Cygni Profiles in Zeta Ophiuchi and Zeta Puppis. *Donald C. Morton*. **203**, 386, 6-A10 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. II. A Saturated Line in 32 Aquarii and in Sirius. *Myron A. Smith*. **203**, 603, 9-D9 (1976)
- Formation of Spectral Lines with Partial Frequency Redistribution. *J. N. Heasley and F. Kneer*. **203**, 660, 10-B2 (1976)
- Transfer of Line Radiation in Differentially Expanding Atmospheres. IV. The Two-Level Atom in Plane-parallel Geometry Solved by the Feautrier Method: Erratum. *P. D.*

- Noerdlinger and G. B. Rybicki. **203**, 769, 11-C7 (1976)
(Orig. paper in **193**, 651, 71-D5)
- Copernicus Ultraviolet Spectra of OB Supergiants with Strong Stellar Winds. J. B. Hutchings. **204**, L99, 22-C13 (1976)
- Ultraviolet Observations of Cool Stars. V. The Local Density of Interstellar Matter. W. McClintock, R. C. Henry, H. W. Moos, and J. L. Linsky. **204**, L103, 22-D3 (1976)
- High-Resolution Profiles of the Diffuse Interstellar Feature at 5780 Å. Blair D. Savage. **205**, 122, 29-C7 (1976)
- Asymmetries in the Absorption Lines of Manganese Stars. Myron A. Smith and Sidney B. Parsons. **205**, 430, 34-C7 (1976)
- The Mg II *h* and *k* Lines. I. Absolute Center and Limb Measurements of the Solar Profiles. J. L. Kohl and W. H. Parkinson. **205**, 599, 36-A10 (1976)
- The Mg II *h* and *k* Lines. II. Comparison with Synthesized Profiles and Ca II *K*. T. R. Ayres and J. L. Linsky. **205**, 874, 40-D6 (1976)
- The Fundamental Bands of CO as Chromospheric Indicators in Late-Type Giant Stars. J. N. Heasley and R. W. Milkey. **205**, L43, 32-D1 (1976)
- Mass Loss and Asymmetries in the Lines of Iota Coronae Borealis. Alan H. Karp. **205**, L93, 37-C7 (1976)
- Doppler Wavelength Shifts of Transition Zone Lines Measured in Skylab Solar Spectra. G. A. Doschek, U. Feldman, and J. D. Bohlin. **205**, L177, 42-E7 (1976)
- Luminosity Effects in the Ultraviolet Spectrum of B5-B6 Stars. Anne B. Underhill and Ernest Silversmith. **206**, L56, 44-E11 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. III. Solar Microturbulence and Macroturbulence from Iron Lines. Myron A. Smith, L. Testerman, and J. C. Evans. **207**, 308, 61-C6 (1976)
- A Model for P Cygni Based on the He I Spectrum. William R. Oegerle and David Van Blerkom. **208**, 453, 79-G8 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. IV. A Technique for Separating Macroturbulence from Rotation in Solar-Type Stars. Myron A. Smith. **208**, 487, 80-C4 (1976)
- The Broadening of the Calcium Resonance Line in a High-Temperature Helium Atmosphere. R. D. Driver and J. L. Snider. **208**, 518, 80-E7 (1976)
- The Unimportance of Pressure Shifts in the Measurement of Gravitational Redshifts in White Dwarfs. H. L. Shipman and R. G. Mehan. **209**, 205, 90-B6 (1976)
- The Quiet Sun Chromospheric Network Observed from Skylab. U. Feldman, G. A. Doschek, and N. P. Patterson. **209**, 270, 90-G6 (1976)
- Lyman-Alpha Observations of Comet Kohoutek 1973 XII with Copernicus. J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller. **209**, 302, 91-B10 (1976)
- H α Polarization and Line Profiles in White Dwarfs with Strong Magnetic Fields. Ermanno F. Borra. **209**, 858, 100-B1 (1976)
- On the Interpretation of Fe II Emission Profiles in Seyfert Galaxies and QSOs. Roger Ptak and Ronald Stoner. **210**, 25, 103-C4 (1976)
- A Radio Recombination-Line Study of the Planetary Nebula NGC 7027. Eric J. Chaisson and Matthew A. Malkan. **210**, 108, 104-C1 (1976)
- Stellar Model Chromospheres. V. Alpha Centauri A (G2 V) and Alpha Centauri B (K1 V). T. R. Ayres, J. L. Linsky, A. W. Rodgers, and R. L. Kurucz. **210**, 199, 105-B11 (1976)
- Redshift Doublets in QSO Absorption Spectra. Alan H. Karp. **210**, 279, 107-A4 (1976)
- An Infall Model for the T Tauri Phenomenon. Roger K. Ulrich. **210**, 377, 108-A6 (1976)
- Combined Ground and Aircraft Based 1-4 Micron Spectra of LkH α 101. Rodger I. Thompson, Edwin F. Erickson, Fred C. Witteborn, and D. W. Strecker. **210**, L31, 106-D1 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White. **210**, L107, 111-E8 (1976)
- Mass Ejection from the O4f Star Zeta Puppis. Henry J. G. L. M. Lamers and Donald C. Morton. **32**, 715, 34-F1 (1976) (Abstr. in **210**, 624, 110-F3)
- Luminosity Function**
- The Absolute Magnitude of First Ranked Cluster Galaxies as a Function of Cluster Richness. Allan Sandage. **205**, 6, 28-A10 (1976)
- Luminosity Functions and the Evolution of Low-Mass Population I Giants. Beatrice M. Tinsley and James E. Gunn. **206**, 525, 50-A1 (1976)
- Bright Galaxies in Rich Clusters: Test of a Statistical Model for Magnitude Distributions. M. J. Geller and P. J. E. Peebles. **206**, 939, 55-G1 (1976)
- On Schmidt's V_m Estimator and Other Estimators of Luminosity Functions. James E. Felten. **207**, 700, 68-B5 (1976)
- Groups of Galaxies. II. The Luminosity Function. Edwin L. Turner and J. Richard Gott III. **209**, 6, 88-A9 (1976)
- New Color-Magnitude Diagrams for Four Globular Clusters. William E. Harris, René Racine, and James de Roux. **31**, 13, 11-B1 (1976) (Abstr. in **205**, 655, 36-E10)
- Magnetic Fields**
- Interplanetary Stream Magnetism: Kinematic Effects. L. F. Burlaga and E. Barouch. **203**, 257, 3-F13 (1976)
- A Possible Magnetic DA White Dwarf. D. T. Wickramasinghe and M. S. Bessell. **203**, L39, 4-F1 (1976)
- Spectroscopic Evidence for a Higher Rotation Rate of Magnetized Plasma at the Solar Photosphere. Peter Foukal. **203**, L145, 11-F11 (1976)
- OH and H $_2$ O Masers in the Monoceros-R2 Molecular Cloud. G. R. Knapp and R. L. Brown. **204**, 21, 13-C1 (1976)
- Energy Spectrum of Hydrogen-like Atoms in a Strong Magnetic Field: Erratum. G. L. Surmelian and R. F. O'Connell. **204**, 311, 16-D8 (1976) (Orig. paper in **190**, 741, 37-D13)
- Magnetic Fields and the Nova Outburst. William K. Rose and Eugene Howard Scott. **204**, 516, 20-B1 (1976)
- Theory of the Polarization of Pulsar Radio Radiation. W. J. Cooke and A. G. Pacholczyk. **204**, L13, 17-A13 (1976)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. I. Formulation of the Problem and Method of Solution. Telemachos Ch. Mouschovias. **206**, 753, 53-G1 (1976)
- Distribution of Gas, Magnetic Fields, and Cosmic Rays in the Galaxy. J. Paul, M. Cassé, and C. J. Cesarsky. **207**, 62, 58-E12 (1976)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. II. Results. Telemachos Ch. Mouschovias. **207**, 141, 59-E2 (1976)
- Matter in Superstrong Magnetic Fields and the Structure of a Neutron Star's Surface. W. Hillebrandt and E. Müller. **207**, 589, 65-F3 (1976)
- Energy Levels of Hydrogen in Magnetic Fields of Arbitrary Strength. A. R. P. Rau and Larry Spruch. **207**, 671, 66-E1 (1976)
- Pair Production in Intense Magnetic Fields. W. T. Zaumen. **210**, 776, 113-F1 (1976)
- Magnetohydrodynamics: see Hydromagnetics**
- Masers**
- Inversion of the OH 1720 MHz Line. Moshe Elitzur. **203**, 124, 2-C9 (1976)
- OH and H $_2$ O Masers in the Monoceros-R2 Molecular Cloud. G. R. Knapp and R. L. Brown. **204**, 21, 13-C1 (1976)
- Detection of H $_2$ O Maser Emission from Four Infrared Sources. Mark Morris and G. R. Knapp. **204**, 415, 19-A8 (1976)

Masers—Continued

- The Geometry of VY Canis Majoris Derived from SiO Maser Lines. *David Van Blerkom and Lawrence Auer.* **204**, 775, 24-D13 (1976)
- The Unusual H₂O Maser Source near Herbig-Haro Object Number 11. *K. Y. Lo, M. Morris, J. M. Moran, and A. D. Haschick.* **204**, L21, 17-B8 (1976)
- Cyanoacetylene in Dense Interstellar Clouds. *M. Morris, B. E. Turner, Patrick Palmer, and B. Zuckerman.* **205**, 82, 28-G9 (1976)
- OH-IR Stars. II. A Model for the 1612 MHz Masers. *Moshe Elitzur, Peter Goldreich, and Nick Scoville.* **205**, 384, 33-F13 (1976)
- H₂O Maser Emission Associated with T Tauri and Other Regions of Star Formation. *G. R. Knapp and Mark Morris.* **206**, 713, 53-D2 (1976)
- Infrared Spectrophotometry of OH 231.8+4.2 = OH 0739-14. *F. C. Gillett and B. T. Soifer.* **207**, 780, 69-A4 (1976)
- IRC +10 420: A Hot Supergiant Maser. *P. T. Giguere, N. J. Woolf, and J. C. Webber.* **207**, L195, 72-E3 (1976)
- Water Vapor Emission from H II Regions and Infrared Stars. *B. T. Cato, B. O. Rönnäng, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardasmenos, and J. F. Shanley.* **208**, 87, 74-G11 (1976)
- Evidence for Weak Maser Action in Interstellar Cyanodiacetylene. *N. W. Broten, J. M. MacLeod, T. Oka, L. W. Avery, J. W. Brooks, R. X. McGee, and Lynette M. Newton.* **209**, L143, 101-G6 (1976)
- The Extreme High-Velocity H₂O Maser Features in W49 N, W51, and Sagittarius B2. *Mark Morris.* **210**, 100, 104-B6 (1976)
- Radio Observations of Interstellar CH. I. *O. E. H. Rydbeck, E. Kollberg, A. Hjalmarsen, A. Sume, J. Ellér, and W. M. Irvine.* **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- Mass-Luminosity Relation**
Corrected Ratios of Average Mass to Average Luminosity for Double Galaxies. *Herbert J. Rood.* **205**, 354, 33-D8 (1976)
- Metal-poor Stars: see Stars: Weak-Line**
- Meteors and Meteorites**
On the Primordial Abundance of Argon-40. *F. Begemann, H. W. Weber, and H. Hintenberger.* **203**, L155, 11-G9 (1976)
- Radiometric Diameters for an Additional 22 Asteroids. *David Morrison and Clark R. Chapman.* **204**, 934, 26-B8 (1976)
- Heavily Irradiated Grains and Neon Isotope Anomalies in Carbonaceous Chondrites. *J. Audouze, J. P. Bibring, J. C. Dran, M. Maurette, and R. M. Walker.* **206**, L185, 56-G10 (1976)
- Abundances of Z > 52 Nuclei in Galactic Cosmic Rays: Long-Term Averages Based on Studies of Pallasites. *O. Otgonsuren, V. P. Perelygin, S. G. Stetsenko, N. N. Gavrilova, C. Fiéni, and P. Pellas.* **210**, 258, 105-G1 (1976)
- Microwave Radiation: see Radio Sources: General**
- Mira Variables: see Stars: Long-Period Variables**
- Molecular Processes**
Inversion of the OH 1720 MHz Line. *Moshe Elitzur.* **203**, 124, 2-C9 (1976)
- C₃ as a Significant Opacity Source in Ba II Stars. *John D. Fix.* **203**, 463, 7-A2 (1976)
- Laboratory Band Strengths of Methane and Their Application to the Atmospheres of Jupiter, Saturn, Uranus, Neptune, and Titan. *Barry L. Lutz, Tobias Owen, and Robert D. Cess.* **203**, 541, 7-G4 (1976)
- Interstellar H₂: The Population of Excited Rotational States and the Infrared Response to Ultraviolet Radiation. *J. H. Black and A. Dalgarno.* **203**, L32, 2-D3 (1976)
- Temperature Dependence of Mid-Infrared Silicate Absorption. *Kenrick L. Day.* **203**, L99, 8-E12 (1976)
- A Statistical Method for Treating Molecular Line Opacities. *C. Sneden, H. R. Johnson, and B. M. Krupp.* **204**, 281, 16-B5 (1976)
- The C₄ Molecule. *W. R. M. Graham, K. T. Dismuke, and W. Weltner, Jr.* **204**, 301, 16-C12 (1976)
- Thermal-chemical Instabilities in CO Clouds. *A. E. Glassgold and William D. Langer.* **204**, 403, 18-G9 (1976)
- Molecular Ions in Comet Tails. *S. Wyckoff and P. A. Wehinger.* **204**, 604, 21-A12 (1976)
- On the Ionization and Excitation of H₂O⁺ in Comet Kohoutek (1973f). *S. Wyckoff and P. A. Wehinger.* **204**, 616, 21-B9 (1976)
- Experimental Oscillator Strengths in the C₂ (A ¹Π_u-X ¹Σ_g⁺) Phillips Band System. *F. Roux, D. Cerny, and J. D'Incan.* **204**, 940, 26-C1 (1976)
- Rotational Excitation of CO by Collisions with He, H, and H₂ under Conditions in Interstellar Clouds. *Sheldon Green and Patrick Thaddeus.* **205**, 766, 39-B5 (1976)
- A Lower Limit on the Surface ¹²C/¹³C Ratio in Alpha Orionis. *T. N. Gautier III, Rodger I. Thompson, Uwe Fink, and Harold P. Larson.* **205**, 841, 40-A10 (1976)
- CRL 2688 and CRL 618: Proto-Planetary Nebulae? *K. Y. Lo and Kenneth P. Bechis.* **205**, L21, 32-B7 (1976)
- The Absorption-Line Spectrum of the BL Lacertae Object AO 0235+164. *E. M. Burbidge, R. D. Caldwell, Harding E. Smith, J. Liebert, and H. Spinrad.* **205**, L117, 42-A10 (1976)
- Measurement and Significance of the Reaction ¹³C⁺ + ¹²CO = ¹²C⁺ + ¹³CO for Alteration of the ¹³C/¹²C Ratio in Interstellar Molecules. *William D. Watson, Vincent G. Anicich, and Wesley T. Huntress, Jr.* **205**, L165, 42-D11 (1976)
- Deviation from a Maxwellian Velocity Distribution in Regions of Interstellar Molecular Hydrogen. *Robert J. Gould and Martin Levy.* **206**, 435, 49-A5 (1976)
- Calculations of the Lower Electronic States of CH₃⁺: A Postulated Intermediate in Interstellar Reactions. *R. J. Blint, R. F. Marshall, and William D. Watson.* **206**, 627, 51-A13 (1976)
- A New ¹Σ⁺-¹Σ⁺ System of the ZrO Molecule. *John G. Phillips and Sumner P. Davis.* **206**, 632, 51-B4 (1976)
- Collisionally Induced Hyperfine-Structure Transitions of OH. *Shih-I Chu.* **206**, 640, 51-C2 (1976)
- Departures from LTE in the Fundamental Bands of CO in Cool Stars. *D. F. Carbon, R. W. Milkey, and J. N. Heasley.* **207**, 253, 60-F7 (1976)
- Predissociation Effects in the A, B, and C States of CH and the Interstellar Formation Rate of CH Inverse Predissociation. *J. Brzozowski, P. Bunker, N. Elander, and P. Erman.* **207**, 414, 63-F8 (1976)
- The Rotation-Vibration Spectrum of HD: Wavelength and Intensity Measurements of the 3-0, 4-0, 5-0, and 6-0 Electric Dipole Bands. *A. R. W. McKellar, W. Goetz, and D. A. Ramsay.* **207**, 663, 66-D6 (1976)
- Molecular Hydrogen in Interstellar Dark Clouds. *Mark Allen and G. Wilse Robinson.* **207**, 745, 68-E10 (1976)
- Radiative Processes Affecting the Abundance of Interstellar OH. *Wm. Hayden Smith and Ellen G. Zweibel.* **207**, 758, 68-F9 (1976)
- Quantum Effects in the Formation of CH⁺ by Radiative Association. *H. Abgrall, A. Giusti-Suzor, and E. Roueff.* **207**, L69, 62-F6 (1976)
- Experimental Limits on the Velocities of Sodium Atoms Sputtered from Solid Surfaces by Hydrogen Ions. *John O. Stoner, Jr.* **207**, L141, 67-F3 (1976)
- Laboratory Studies of Ion-Neutral Reactions in Interstellar Regions: Gas-Phase Equilibrium between HCN and NH₃ in Dense Clouds. *W. T. Huntress, Jr. and V. G. Anicich.* **208**, 237, 76-E1 (1976)
- Laboratory Microwave Spectrum of Cyanamide. *Donald R. Johnson, Richard D. Suenram, and Walter J. Lafferty.* **208**, 245, 76-E9 (1976)
- Isotopic Abundances of Magnesium in Arcturus. *J. Tomkin and D. L. Lambert.* **208**, 436, 79-F6 (1976)
- H₂ in Expanding Circumstellar Shells. *David Hollenbach, Shih-I Chu, and Richard McCray.* **208**, 458, 79-G13 (1976)
- Iron Hydride: Laboratory Studies and Solar Identification. *P. K. Carroll, P. McCormack, and S. O'Connor.* **208**, 903,

- 86-A4 (1976)
Collisional Excitation of A Doublet Transitions in CH and OH. *M. Bertojo, A. C. Cheung, and C. H. Townes.* **208**, 914, 86-B6 (1976)
On the 6825 Å Band of Methane. *Barry L. Lutz and Tobias Owen.* **208**, L99, 82-D9 (1976)
Fourier Analysis of Steady-State Reaction Schemes for Interstellar Molecules. *P. J. Kuntz, G. F. Mitchell, and J. Ginsburg.* **209**, 116, 89-B12 (1976)
Lyman-Alpha Observations of Comet Kohoutek 1973 XII with Copernicus. *J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller.* **209**, 302, 91-B10 (1976)
H₂ Molecules and the Intercloud Medium. *Jesse K. Hill and David J. Hollenbach.* **209**, 445, 94-C8 (1976)
Ion Reactions with Atomic Oxygen and Atomic Nitrogen of Astrophysical Importance. *F. C. Fehsenfeld.* **209**, 638, 96-C12 (1976)
Rotational Analysis of the First Negative System of ¹²C ¹⁸O⁺. *J. D. Janjić and D. S. Pešić.* **209**, 642, 96-D3 (1976)
Radio Observations of OH in Comet West 1975n. *L. E. Snyder, J. C. Webber, R. M. Crutcher, and G. W. Swenson, Jr.* **209**, L49, 92-D6 (1976)
The Production Rate and Possible Origin of O (¹D) in Comet Bennett 1970 II. *A. Delsemme and M. R. Combi.* **209**, L149, 101-G11 (1976)
Production Rate and Origin of H₂O⁺ in Comet Bennett 1970 II. *A. H. Delsemme and M. R. Combi.* **209**, L153, 102-A1 (1976)
Laboratory Observations of the 16 GHz Rotational Transition in NH₂. *G. W. Hills and J. M. Cook.* **209**, L157, 102-A5 (1976)
Interstellar Cloud Evolution and the Abundance of Formaldehyde. *William D. Langer.* **210**, 328, 107-D13 (1976)
The ¹²C/¹³C Ratio in Stellar Atmospheres. VI. Five Luminous Cool Stars. *K. H. Hinkle, D. L. Lambert, and R. L. Snell.* **210**, 684, 112-F4 (1976)
Water Emission from Infrared Stars. *Dale F. Dickinson.* **30**, 259, 5-D1 (1976) (Abstr. in **204**, 312, 16-D9)
Identification of Novel Molecules in the Spectrum of 19 Piscium. *Robert S. Wojslaw and Benjamin F. Peery, Jr.* **31**, 75, 12-B1 (1976) (Abstr. in **205**, 656, 36-E11)
The [X⁺Σ⁺ System of Zirconium Oxide. *John G. Phillips and Sumner P. Davis.* **32**, 537, 32-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- Moon**
Grains of Anomalous Isotopic Composition from Novae. *D. D. Clayton and F. Hoyle.* **203**, 490, 7-C4 (1976)
- Nebulae: Abundances**
Chemical Composition of H II Regions in the Small Magellanic Cloud and the Pregalactic Helium Abundance. *Manuel Peimbert and Silvia Torres-Peimbert.* **203**, 581, 9-C1 (1976)
Isotope Abundances in Interstellar Molecular Clouds. *P. G. Wannier, A. A. Penzias, R. A. Linke, and R. W. Wilson.* **204**, 26, 13-C6 (1976)
HCN, X-ogen (HCO⁺), and U90.66 Emission Spectra from L134. *L. E. Snyder and J. M. Hollis.* **204**, L139, 27-C4 (1976)
Observations of 10.5 GHz Recombination Lines toward Orion A. *I. A. Ahmad.* **205**, 379, 33-F8 (1976)
Observations of Interstellar Silicon Monoxide. *Dale F. Dickinson, C. A. Gottlieb, Elaine W. Gottlieb, and M. M. Litvak.* **206**, 79, 43-F12 (1976)
Abundances of Simple Oxygen-bearing Molecules and Ions in Interstellar Clouds. *A. E. Glassgold and William D. Langer.* **206**, 85, 43-G4 (1976)
X-Ray Spectra of the Puppis A and the Vela Supernova Remnants. *W. E. Moore and G. P. Garmire.* **206**, 247, 45-E5 (1976)
Time-dependent Effects in the Nebular Shell of FG Sagittae. *J. Patrick Harrington and Paul A. Maronni.* **206**, 458, 49-C1 (1976)
Abundance Gradients in Extragalactic H II Regions and Internal Absorption by Dust. *Craig L. Sarazin.* **208**, 323, 78-D9 (1976)
Depletion of Heavy Elements toward the Rho Ophiuchi Dust Cloud. *Richard M. Crutcher.* **208**, 382, 79-B1 (1976)
Optical Emission from Shock Waves. I. Abundances in N49. *Michael A. Dopita.* **209**, 395, 93-F13 (1976)
A Radio Recombination-Line Study of the Planetary Nebula NGC 7027. *Eric J. Chaisson and Matthew A. Malkan.* **210**, 108, 104-C1 (1976)
Detailed Observations of the M17 Molecular Cloud Complex. *Charles J. Lada.* **32**, 603, 33-C1 (1976) (Abstr. in **210**, 622, 110-F1)
Ultraviolet Absorption Lines Associated with the Vela Supernova Remnant. *Edward B. Jenkins, Joseph Silk, and George Wallerstein.* **32**, 681, 43-C1 (1976) (Abstr. in **210**, 621, 110-E14)
- Nebulae: Crab Nebula**
Energy Dependence of the Size of the X-Ray Source in the Crab Nebula. *W. Ku, H. L. Kestenbaum, R. Novick, and R. S. Wolff.* **204**, L77, 22-B5 (1976)
The Optical and X-Ray Surface Brightness of the Crab Nebula. I. A Cosmic-Ray Diffusion Model. *Stephen Lee Weinberg and Joseph Silk.* **205**, 563, 35-F2 (1976)
The Far Side of the Crab Nebula: Electronographic and Spectroscopic Observations. *S. Wyckoff, P. A. Wehinger, R. A. E. Fosbury, and D. McMullan.* **206**, 254, 45-E12 (1976)
Evidence for "Thermal" X-Rays from the Crab Nebula. *A. Toor, T. M. Palmieri, and F. D. Seward.* **207**, 96, 59-A9 (1976)
Observations with a High-Resolution Balloon-borne Gamma-Ray Telescope. *S. P. McKechnie, K. E. Mount, and D. Ramsden.* **207**, L151, 72-B2 (1976)
Measurement of the X-Ray Polarization of the Crab Nebula. *M. C. Weisskopf, G. G. Cohen, H. L. Kestenbaum, K. S. Long, R. Novick, and R. S. Wolff.* **208**, L125, 86-G8 (1976)
Meter-Wavelength VLBI. IV. Temporal and Spatial Scattering of the Crab Nebula Pulsar's Radiation. *N. R. Vandenberg.* **209**, 578, 95-F3 (1976)
Evidence for a Variable Flux of >10¹¹ eV Gamma-Rays from NP 0532. *J. E. Grindlay, H. F. Helmken, and T. C. Weekes.* **209**, 592, 95-G3 (1976)
Search for Pulsed Gamma Rays of ~10¹³ eV from NP 0532. *R. A. Erickson, R. K. Finkle, and R. C. Lamb.* **210**, 539, 109-F7 (1976)
- Nebulae: General**
Chemical Composition of H II Regions in the Small Magellanic Cloud and the Pregalactic Helium Abundance. *Manuel Peimbert and Silvia Torres-Peimbert.* **203**, 581, 9-C1 (1976)
Hα Emission from the Disks of Spiral Galaxies. *Judith G. Cohen.* **203**, 587, 9-C7 (1976)
Recombination-Line Observations of W3 (OH). I. A Model for OH and H₂O Emission. *V. A. Hughes and M. R. Viner.* **204**, 55, 13-E9 (1976)
Radio Continuum Observations of NML Cygni. *P. C. Gregory and E. R. Seaquist.* **204**, 626, 21-C5 (1976)
The Polarization of the Infrared Source CRL 2688 (The Egg Nebula). *Stephen J. Shawl and Massimo Tarenghi.* **204**, L25, 17-B12 (1976)
Optical and Infrared Spectrophotometry of 18 Markarian Galaxies. *G. Neugebauer, E. E. Becklin, J. B. Oke, and L. Searle.* **205**, 29, 28-C7 (1976)
Far-Ultraviolet Brightness of Nebulae in Cygnus. *George R. Carruthers and Thornton Page.* **205**, 397, 33-G12 (1976)
The Ionization of Cloud and Intercloud Hydrogen by O and B stars. *Bruce Elmegreen.* **205**, 405, 34-A8 (1976)
H II Region in NGC 628. I. Positions and Sizes. *Paul W. Hodge.* **205**, 728, 38-F5 (1976)

Nebulae: General—Continued

- Submillimeter Observations of NGC 2024, OMC-2, and Mon R-2. *H. S. Hudson and B. T. Soifer.* **206**, 100, 44-A5 (1976)
- Evolution of Rotating Interstellar Clouds. II. The Collapse of Protostars of 1, 2, and 5 Mo. *David C. Black and Peter Bodenheimer.* **206**, 138, 44-D7 (1976)
- Fabry-Perot Observations of Peculiar Hydrogen-Emission Nebulae. *Hugh M. Johnson.* **206**, 243, 45-E1 (1976)
- Enhanced Effects of Starlight on the Interstellar Medium. *Humberto Gerola and Robert A. Schwartz.* **206**, 452, 49-B9 (1976)
- Infrared Sources in Molecular Clouds. *N. Z. Scoville and John Kwan.* **206**, 718, 53-D7 (1976)
- H II Regions in NGC 628. II. Analysis of the Spatial Distribution. *R. C. Kennicutt and P. W. Hodge.* **207**, 36, 58-D1 (1976)
- 3 Millimeter and 350 Micron Continuum Observations of the DR-21 and Sagittarius B2 Regions. *G. Righini, M. Simon, and R. R. Joyce.* **207**, 119, 59-C7 (1976)
- On the Derivation of Nebular Electron Temperatures from Radio Recombination Line Observations. *Felix J. Lockman and Robert L. Brown.* **207**, 436, 64-A5 (1976)
- The Spectrum of Portions of Diffuse Nebulae Shadowed from the Central Star. *John S. Mathis.* **207**, 442, 64-A11 (1976)
- Shock-driven Implosion of Interstellar Gas Clouds and Star Formation. *Paul R. Woodward.* **207**, 484, 64-E5 (1976)
- Molecular Hydrogen in Interstellar Dark Clouds. *Mark Allen and G. Wilse Robinson.* **207**, 745, 68-E10 (1976)
- Water Vapor Emission from H II Regions and Infrared Stars. *B. T. Cato, B. O. Rönning, O. E. H. Rydbeck, P. T. Lewin, K. S. Yngvesson, A. G. Cardenas, and J. F. Shanley.* **208**, 87, 74-G11 (1976)
- Oscillation and Collapse of Interstellar Clouds. *Stephen V. Weber.* **208**, 113, 75-C1 (1976)
- The Ionization Structure of H II Regions: The Effects of Stellar Metal Opacity. *Bruce Balick and Christopher Sneden.* **208**, 336, 78-E8 (1976)
- Approximate Solutions of Radiative Transfer in Dusty Nebulae. II. Hydrogen and Helium. *Roger A. Dana and Vahé Petrosian.* **208**, 354, 78-F13 (1976)
- Depletion of Heavy Elements toward the Rho Ophiuchi Dust Cloud. *Richard M. Crutcher.* **208**, 382, 79-B1 (1976)
- Surface Brightness Profiles of Dark Nebulae: The Thumbprint Nebula in Chamaeleon. *M. P. Fitzgerald, T. C. Stephens, and A. N. Witt.* **208**, 709, 83-G9 (1976)
- The 10 Micron Silicate Feature in Southern H II Regions. *S. Persson, Jay A. Frogel, and Marc Aaronson.* **208**, 753, 84-C13 (1976)
- Radiation Transport in Dense Interstellar Dust Clouds. II. Infrared Emission from Molecular Clouds Associated with H II Regions. *Chun Ming Leung.* **209**, 75, 88-F12 (1976)
- One-Millimeter Continuum Emission Studies of Four Molecular Clouds. *W. E. Westbrook, M. W. Werner, J. H. Elias, D. Y. Gezari, M. G. Hauser, K. Y. Lo, and G. Neugebauer.* **209**, 94, 89-A3 (1976)
- The Origin of OB Associations and Extended Regions of High-Energy Activity in the Galaxy through Supernova Cascade Processes. *Hakki B. Ögelman and Stephen P. Maran.* **209**, 124, 89-C6 (1976)
- A Dense Molecular Cloud in the OMC-1/OMC-2 Region. *Marc L. Kutner, Neal J. Evans II, and Kenneth D. Tucker.* **209**, 452, 94-D1 (1976)
- 2-4 Micron Spectrophotometric Observations of Compact H II Regions. *B. T. Soifer, R. W. Russell, and K. M. Merrill.* **210**, 334, 107-E5 (1976)
- Radio Observations of Interstellar CH. *I. O. E. H. Rydbeck, E. Kollberg, A. Hjalmarson, A. Sume, J. Eldér, and W. M. Irvine.* **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- A Catalog of Relative Emission Line Intensities Observed in Planetary and Diffuse Nebulae. *James B. Kaler.* **31**, 517, 20-A2 (1976) (Abstr. in **207**, 684, 66-E14)
- Nebulae: Individual** (arranged by Messier number, NGC number, and other designation)

By Messier Number

- The Infrared Emission of M17. *D. A. Harper, F. J. Low, G. H. Rieke, and Harley A. Thronson, Jr.* **205**, 136, 29-D6 (1976)
- H₂O and 22 GHz Continuum Observations of M17. *Charles J. Lada, Dale F. Dickinson, C. A. Gottlieb, and E. L. Wright.* **207**, 113, 59-C1 (1976)
- Detailed Observations of the M17 Molecular Cloud Complex. *Charles J. Lada.* **32**, 603, 33-C1 (1976) (Abstr. in **210**, 622, 110-F1)
- Far-Infrared Observations of M20 (NGC 6514). *E. L. Wright, G. G. Fazio, and F. J. Low.* **208**, L87, 82-C12 (1976)
- By NGC Number**
- Colliding Clouds and Star Formation in NGC 1333. *Robert B. Loren.* **209**, 466, 94-E1 (1976)
- CO Observations of NGC 1579 (S222) and S239. *G. R. Knapp, T. B. H. Kuiper, S. L. Knapp, and Robert L. Brown.* **206**, 443, 49-A13 (1976)
- The Role of Dust in NGC 2024. *C. L. Sarazin.* **204**, 68, 13-F8 (1976)
- Studies of the Dusty H II Region NGC 2024. *Bruce Balick.* **208**, 75, 74-F12 (1976)
- Reddening of Planetary Nebulae: NGC 2392. *David M. Zipoy.* **209**, 108, 89-B4 (1976)
- Far-Infrared Observations of M20 (NGC 6514). *E. L. Wright, G. G. Fazio, and F. J. Low.* **208**, L87, 82-C12 (1976)
- Electron Density Measurements in NGC 6720. *Lawrence H. Aller, Harland W. Epps, and S. J. Czyzak.* **205**, 798, 39-D9 (1976)
- The Spectrum of NGC 7027. *J. B. Kaler, L. H. Aller, S. J. Czyzak, and H. W. Epps.* **31**, 163, 14-A2 (1976) (Abstr. in **206**, 343, 46-E11)
- 8 to 13 Micron Spectrophotometry of Compact Sources in NGC 7538. *S. P. Willner.* **206**, 728, 53-E3 (1976)
- By Other Designation**
- Spectra and Fabry-Perot Interferometry of AG Carinae and the Nebula. *Hugh M. Johnson.* **206**, 469, 49-C12 (1976)
- [η Carina] On the Extinction Law in the Carina Nebula. *William Herbst.* **208**, 923, 86-C1 (1976)
- A Continuous Injection Model for the Supernova Remnants Cassiopeia A and the Crab Nebula. *F. W. Peterson.* **210**, 723, 113-B3 (1976)
- Optical Studies of Cassiopeia A. V. A Definitive Study of Proper Motion. *Karl Kamper and Sydney van den Bergh.* **32**, 351, 38-D1 (1976) (Abstr. in **208**, 955, 86-E4)
- The Relation between Carbon Monoxide Emission and Visual Extinction in Cloud L134. *K. D. Tucker, R. L. Dickman, P. J. Encrenaz, and M. L. Kutner.* **210**, 679, 112-E13 (1976)
- Observations of the Gum Nebula with a Fabry-Perot Spectrometer. *R. J. Reynolds.* **203**, 151, 2-E9 (1976)
- The Gum Nebula: An Old Supernova Remnant Ionized by Zeta Puppis and Gamma Velorum? *R. J. Reynolds.* **206**, 679, 53-A10 (1976)
- Direct Photography of the Gum Nebula. *John C. Brandt, Robert G. Roosen, J. Thompson, and D. J. Ludden.* **208**, 109, 75-B6 (1976)
- [Gum Nebula] Ultraviolet Absorption Lines Associated with the Vela Supernova Remnant. *Edward B. Jenkins, Joseph Silk, and George Wallerstein.* **32**, 681, 43-C1 (1976) (Abstr. in **210**, 621, 110-E14)
- High-Dispersion Observations of Emission Lines in the Post-Nova HR Delphini. *J. S. Gallagher and Christopher M. Anderson.* **203**, 625, 9-F4 (1976)
- Soft X-Ray Profile and Spectrum of the Supernova Remnant IC 443. *Roger Malina, Michael Lampton, and Stuart Bowyer.* **207**, 894, 70-B11 (1976)
- The Nature of the Broad Molecular Line Emission at the Kleinmann-Low Nebula. *John Kwan and Nick Scoville.* **210**, L39, 106-D8 (1976)
- Infrared Observations of Monoceros R2. *S. Beckwith, N. J. Evans II, E. E. Becklin, and G. Neugebauer.* **208**, 390, 79-B9 (1976)

- [Orion Nebula] Millimeter Emission Lines in Orion A. *Frank J. Lovas, Donald R. Johnson, David Buhl, and Lewis E. Snyder*. **209**, 770, 99-B6 (1976)
- Infrared Studies of an Ionized Front Region in the Orion Nebula. *E. E. Becklin, S. Beckwith, I. Gatley, K. Matthews, G. Neugebauer, C. Sarazin, and M. W. Werner*. **207**, 770, 68-G8 (1976)
- Observations of 10.5 GHz Recombination Lines toward Orion A. *I. A. Ahmad*. **205**, 379, 33-F8 (1976)
- A Two-Component Model for the Orion A Carbon Radio Recombination Lines. *I. A. Ahmad*. **209**, 462, 94-D11 (1976)
- Observations of Heavy-Element Recombination Lines in the Rho Ophiuchi Dark Cloud at 13 Centimeter Wavelength. *G. R. Knapp, T. B. H. Kuiper, and Robert L. Brown*. **206**, 109, 44-B1 (1976)
- Carbon Recombination Line Observations of the Sharpless 140 Region. *G. R. Knapp, Robert L. Brown, T. B. H. Kuiper, and R. K. Kakar*. **204**, 781, 24-E5 (1976)
- CO Observations of NGC 1579 (S222) and S239. *G. R. Knapp, T. B. H. Kuiper, S. L. Knapp, and Robert L. Brown*. **206**, 443, 49-A13 (1976)
- The Nature of the Nebulosity around 3C 48. *Jacqueline Bergeron*. **210**, 287, 107-A12 (1976)
- Nebulae: Orion Nebula**
- One Arc-Minute Resolution Maps of the Orion Nebula at 20, 50, and 100 Microns. *M. W. Werner, I. Gatley, D. A. Harper, E. E. Becklin, R. F. Loewenstein, C. M. Telesco, and H. A. Thronson*. **204**, 420, 19-A13 (1976)
- A Polarization Survey of Stars near the Orion Nebula. *Michel Breger*. **204**, 789, 24-E12 (1976)
- Far-Infrared Spectral Observations of M42 and M17. *Dennis B. Ward, Brian Dennison, George E. Gull, and Martin Harwit*. **205**, L75, 37-B6 (1976)
- Observations of Interstellar Silicon Monoxide. *Dale F. Dickinson, C. A. Gottlieb, Elaine W. Gottlieb, and M. M. Litvak*. **206**, 79, 43-F12 (1976)
- Detection of Molecular Hydrogen Quadrupole Emission in the Orion Nebula. *T. N. Gautier III, Uwe Fink, Richard R. Treffers, and Harold P. Larson*. **207**, L129, 67-E3 (1976)
- 16–25 Micron Spectroscopy of the Trapezium and BN–KL Source in Orion. *W. J. Forrest and B. T. Soifer*. **208**, L129, 87-A1 (1976)
- 16–40 Micron Spectroscopy of the Trapezium and the Kleinmann-Low Nebula in Orion. *W. J. Forrest, J. R. Houck, and R. A. Reed*. **208**, L133, 87-A5 (1976)
- High-Velocity Gas in the Orion Infrared Nebula. *B. Zuckerman, T. B. H. Kuiper, and E. N. Rodriguez Kuiper*. **209**, L137, 101-F13 (1976)
- Further Measurements of Amorphous Silicates. *Kenrick L. Day*. **210**, 614, 110-E6 (1976)
- Infrared Line Emission from the Orion Nebula: Detection of [S III] (18.71 μ) and [O III] (88.35 μ). *J. -P. Baluteau, E. Bussoletti, M. Anderegg, A. F. M. Moorwood, and N. Coron*. **210**, L45, 106-E1 (1976)
- Nebulae: Planetary**
- Radiative Transfer in Spherical Circumstellar Dust Envelopes. IV. The Infrared Emissivity Profile and Composition of the Dust in NGC 7027. *John P. Apruzese*. **203**, 177, 2-G11 (1976)
- On the Abundances of Helium, Nitrogen, and Oxygen in the Planetary Nebulae of the Magellanic Clouds. *Patrick S. Osmer*. **203**, 352, 5-F2 (1976)
- The Peculiar Object He 2-467. *J. H. Lutz, T. E. Lutz, J. B. Kaler, D. E. Osterbrock, and S. A. Gregory*. **203**, 481, 7-B9 (1976)
- A Spectrographic Survey of 21 Planetary Nebulae. *J. B. Kaler, L. H. Aller, and S. J. Czyzak*. **203**, 636, 9-G1 (1976)
- Radio Synthesis Observations of Planetary Nebulae. II. A Search For Sub-Arcsecond Structure. *Bruce Balick and Yervant Terzian*. **204**, 441, 19-C5 (1976)
- Electron Densities in Gaseous Nebulae. *Lawrence H. Aller and Harland W. Epps*. **204**, 445, 19-C9 (1976)
- Dynamics of Envelopes of Planetary Nebulae. *Donat G. Wentzel*. **204**, 452, 19-D5 (1976)
- On the Number of Planetary Nebulae in our Galaxy. *D. Alloin, C. Cruz-González, and M. Peimbert*. **205**, 74, 28-G1 (1976)
- Electron Density Measurements in NGC 6720. *Lawrence H. Aller, Harland W. Epps, and S. J. Czyzak*. **205**, 798, 39-D9 (1976)
- Additional Observations of the Unidentified Infrared Features at 3.28 and 3.4 Microns. *G. L. Grasdale and R. R. Joyce*. **205**, L11, 32-A12 (1976)
- CRL 2688: A Post-Carbon-Star Object and Probable Planetary Nebula Progenitor. *B. Zuckerman, Daya P. Gilra, B. E. Turner, M. Morris, and Patrick Palmer*. **205**, L15, 32-B2 (1976)
- CRL 2688 and CRL 618: Proto-Planetary Nebulae? *K. Y. Lo and Kenneth P. Bechis*. **205**, L21, 32-B7 (1976)
- An Optical Search for Ionized Hydrogen in Globular Clusters. *Malcolm G. Smith, James E. Hesser, and Stephen J. Shawl*. **206**, 66, 43-E13 (1976)
- Time-dependent Effects in the Nebular Shell of FG Sagittae. *J. Patrick Harrington and Paul A. Marioni*. **206**, 458, 49-C1 (1976)
- The Excitation of Permitted Lines In Gaseous Nebulae. *Steven A. Grandi*. **206**, 658, 51-D10 (1976)
- Planetary Nebulae, Supernova Remnants, and the Interstellar Medium. *E. E. Salpeter*. **206**, 673, 53-A4 (1976)
- Atomic Nitrogen as a Probe of Physical Conditions in the Interstellar Medium. *M. A. Dopita, D. J. Mason, and W. D. Robb*. **207**, 102, 59-B2 (1976)
- Stellar Production as a Source of ^3He in the Interstellar Medium. *Robert T. Rood, Gary Steigman, and Beatrice M. Tinsley*. **207**, L57, 62-E9 (1976)
- Kinematics and Spectra of Planetary Nebulae with O IV-Sequence Nuclei. *Hugh M. Johnson*. **208**, 127, 75-D1 (1976)
- Planetary Nebulae in Local Group Galaxies. III. Radial Velocity Observations of H II Regions in the M32 Field. *Holland C. Ford and David C. Jenner*. **208**, 683, 83-E10 (1976)
- Radio Sources in the Field of Globular Clusters. *Hugh M. Johnson*. **208**, 706, 83-G6 (1976)
- Reddening of Planetary Nebulae: NGC 2392. *David M. Zipoy*. **209**, 108, 89-B4 (1976)
- The Spectrum of the Planetary Nebulae NGC 7027 from 0.9 to 2.7 Microns. *Richard R. Treffers, Uwe Fink, Harold P. Larson, and T. N. Gautier III*. **209**, 793, 99-D3 (1976)
- A Radio Recombination-Line Study of the Planetary Nebula NGC 7027. *Eric J. Chaisson and Matthew A. Malkan*. **210**, 108, 104-C1 (1976)
- Photoelectric Filter Photometry of Planetary Nebulae. *James B. Kaler*. **210**, 113, 104-C6 (1976)
- The Birthrate of Planetary Nebulae. *J. H. Cahn and S. P. Wyatt*. **210**, 508, 109-D3 (1976)
- Energy Balance of the Infrared Radiation in Planetary Nebulae. *K. V. K. Iyengar and K. S. Krishna Swamy*. **210**, 518, 109-D13 (1976)
- The Exciting Stars of Low-Excitation Planetary and Diffuse Nebulae. *James B. Kaler*. **210**, 843, 114-D1 (1976)
- The Spectrum of NGC 7027. *J. B. Kaler, L. H. Aller, S. J. Czyzak, and H. W. Epps*. **31**, 163, 14-A2 (1976) (Abstr. in **206**, 343, 46-E11)
- A Catalog of Relative Emission Line Intensities Observed in Planetary and Diffuse Nebulae. *James B. Kaler*. **31**, 517, 20-A2 (1976) (Abstr. in **207**, 684, 66-E14)
- Nebulae: Supernova Remnants**
- High-Resolution Radio Observations of Three Supernova Remnants. *R. H. Becker and M. R. Kundu*. **204**, 427, 19-B5 (1976)
- Detection of X-Ray Emission from the Remnant of the Supernova 1006 A.D. *P. Frank Winkler, Jr. and Frank N. Laird*. **204**, L111, 27-A2 (1976)

Nebulae: Supernova Remnants—Continued

- An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. *F. Seward, G. Burginon, R. Grader, R. Hill, T. Palmieri, P. Stoering, and A. Toor.* **205**, 238, 30-E8 (1976)
- Fabry-Perot Observations of Peculiar Hydrogen-Emission Nebulae. *Hugh M. Johnson.* **206**, 243, 45-E1 (1976)
- X-Ray Spectra of the Puppis A and the Vela Supernova Remnants. *W. E. Moore and G. P. Garmire.* **206**, 247, 45-E5 (1976)
- The Far Side of the Crab Nebula: Electronographic and Spectroscopic Observations. *S. Wyckoff, P. A. Wehinger, R. A. E. Fosbury, and D. McMullan.* **206**, 254, 45-E12 (1976)
- Planetary Nebulae, Supernova Remnants, and the Interstellar Medium. *E. E. Salpeter.* **206**, 673, 53-A4 (1976)
- The Gum Nebula: An Old Supernova Remnant Ionized by Zeta Puppis and Gamma Velorum? *R. J. Reynolds.* **206**, 679, 53-A10 (1976)
- X-Ray Spectra of Cassiopeia A and Tycho's Supernova Observed with Ariel-5. *P. J. N. Davison, J. L. Culhane, and R. J. Mitchell.* **206**, L37, 47-C12 (1976)
- Iron Line Emission from a High-Temperature Plasma in Cassiopeia A. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **206**, L41, 47-D2 (1976)
- High-Velocity Gas in Supernova Remnants. III. The Monoceros Loop. *George Wallerstein and Theodor S. Jacobsen.* **207**, 53, 58-E3 (1976)
- Limits on the Magnetic Field Strength in H I Clouds surrounding the Supernova Remnants HB 21 and W44. *K. C. Turner, L. K. DeNoyer, and J. W. Erkes.* **207**, 59, 58-E9 (1976)
- Evidence for "Thermal" X-Rays from the Crab Nebula. *A. Toor, T. M. Palmieri, and F. D. Seward.* **207**, 96, 59-A9 (1976)
- Supernova Ejecta in the Large Magellanic Cloud. *I. J. Danziger and M. Dennefeld.* **207**, 394, 63-E1 (1976)
- Cosmic-Ray Acceleration and the Radio Evolution of Cassiopeia A. *Roger A. Chevalier, John W. Robertson, and John S. Scott.* **207**, 450, 64-B5 (1976)
- Time-dependent Radiative Cooling of a Hot, Diffuse Cosmic Gas, and the Emergent X-Ray Spectrum. *Paul R. Shapiro and Robert T. Moore.* **207**, 460, 64-C1 (1976)
- X-Ray Evidence for the Supernova Origin of the North Polar Spur. *R. G. Cruddace, H. Friedman, G. Fritz, and S. Shulman.* **207**, 888, 70-B6 (1976)
- Soft X-Ray Profile and Spectrum of the Supernova Remnant IC 443. *Roger Malina, Michael Lampton, and Stuart Bowyer.* **207**, 894, 70-B11 (1976)
- X-Ray Structure of the Puppis Supernova Remnant. *R. C. Catura and L. W. Acton.* **207**, L163, 72-B13 (1976)
- Direct Photography of the Gum Nebula. *John C. Brandt, Robert G. Roosen, J. Thompson, and D. J. Ludden.* **208**, 109, 75-B6 (1976)
- Soft X-Ray Emission in Eridanus: An Old Supernova Remnant? *S. Naranan, S. Shulman, H. Friedman, and G. Fritz.* **208**, 718, 84-A5 (1976)
- The Optical Remnant of the Lupus Supernova of 1006. *Sidney van den Bergh.* **208**, L17, 77-B4 (1976)
- High-Velocity Gas in the Cygnus Loop. *Robert P. Kirshner and Keith Taylor.* **208**, L83, 82-C7 (1976)
- An Almost Complete Survey of 21 Centimeter Line Radiation for $b \geq 10^\circ$. VI. Energetic Expanding H I Shells. *Carl Heiles.* **208**, L137, 87-A9 (1976)
- Optical Emission from Shock Waves. I. Abundances in N49. *Michael A. Dopita.* **209**, 395, 93-F13 (1976)
- Propagation of Blast Waves. *A. Cavaliere and A. Messina.* **209**, 424, 94-B1 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. *R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **209**, L65, 96-F12 (1976)
- Interaction of the Vela Supernova Remnant with the Cloudy Interstellar Medium. *Edward B. Jenkins, Joseph Silk, and George Wallerstein.* **209**, L87, 97-A4 (1976)
- Mathematical Theory of Isothermal Blast Waves and the Question of Their Applicability to Supernova Remnants. *Ian Lerche and Vytenis M. Vasyliunas.* **210**, 85, 104-A5 (1976)
- Optical Studies of Cassiopeia A. V. A Definitive Study of Proper Motion. *Karl Kamper and Sydney Van Den Bergh.* **32**, 351, 38-D1 (1976) (Abstr. in **208**, 955, 86-E4)
- Ultraviolet Absorption Lines Associated with the Vela Supernova Remnant. *Edward B. Jenkins, Joseph Silk, and George Wallerstein.* **32**, 681, 43-C1 (1976) (Abstr. in **210**, 621, 110-E14)

Neutrinos

- Neutrino Opacities at High Temperatures and Densities: Erratum. *David L. Tubbs and David N. Schramm.* **205**, 308, 31-C10 (1976) (Orig. paper in **201**, 467, 82-C11)
- Neutrino Pair Emission from Finite-Temperature Neutron Superfluid and the Cooling of Young Neutron Stars. *Elliott Flowers, Malvin Ruderman, and Peter Sutherland.* **205**, 541, 35-D8 (1976)
- Stellar Neutrino Pair Emission from De-excitation of Nuclear State via Weak Neutral Currents. *J. P. Crawford, C. J. Hansen, and K. T. Mahanthappa.* **206**, 208, 45-B8 (1976)
- Solar Models of Low Neutrino Counting Rate: Energy Transport by Processes Other than Radiative Transfer. *Michael J. Newman and William A. Fowler.* **207**, 601, 65-G1 (1976)
- Pauli Constriction of the Low-Energy Window in Neutrino Supernova Models. *T. J. Mazurek.* **207**, L87, 67-B4 (1976)
- Neutrino-Neutrino Scattering and Supernovae. *Elliott G. Flowers and Peter G. Sutherland.* **208**, L19, 77-B7 (1976)
- Effects of Neutrino Degeneracy in Supernovae Models. *D. Q. Lamb and C. J. Pethick.* **209**, L77, 96-G8 (1976)
- Neutrino Pair Bremsstrahlung Including Neutral Current Effects. *Duane A. Dicus, Edward W. Kolb, David N. Schramm, and David L. Tubbs.* **210**, 481, 109-B3 (1976)

Notices

- Editorial Policy Changes Necessitated by Continued Growth. *Helmut A. Abt.* **203**, 285, 5-A4 (1976)

Nuclear Reactions

- The Triple-Alpha Rate, Screening Factors, and the Helium Flash: Erratum. *T. D. Tarbell and R. T. Rood.* **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 443, 56-E3)
- Thermonuclear Reaction Rates Derived from Thick-Target Yields. *N. A. Roughton, M. J. Fritts, R. J. Peterson, C. S. Zaidins, and C. J. Hansen.* **205**, 302, 31-C4 (1976)
- Neutrino Pair Emission from Finite-Temperature Neutron Superfluid and the Cooling of Young Neutron Stars. *Elliott Flowers, Malvin Ruderman, and Peter Sutherland.* **205**, 541, 35-D8 (1976)
- Photonuclear Interactions of Ultrahigh-Energy Cosmic Rays and Their Astrophysical Consequences. *J. L. Puget, F. W. Stecker, and J. H. Bredekamp.* **205**, 638, 36-D6 (1976)
- Galactic Evolution Models and the Rhenium-187/Osmium-187 Chronometer: A Greater Age for the Galaxy. *Kem L. Hainebach and David N. Schramm.* **207**, L79, 67-A9 (1976)
- Neutron Star Structure: Theory, Observation, and Speculation. *V. R. Pandharipande, D. Pines, and R. A. Smith.* **208**, 550, 80-G13 (1976)
- Stellar Neutron Capture in the Thallium Isotopes. *R. L. Macklin and R. R. Winters.* **208**, 812, 85-A10 (1976)
- Beryllium in Main-Sequence Stars. *Ann Merchant Boesgaard.* **210**, 466, 109-A1 (1976)
- Neutrino Pair Bremsstrahlung Including Neutral Current Effects. *Duane A. Dicus, Edward W. Kolb, David N. Schramm, and David L. Tubbs.* **210**, 481, 109-B3 (1976)

Nucleosynthesis

- Consistency of Cosmic-Ray Composition, Acceleration Mechanism and Supernova Models. *Kem L. Hainebach, Eric B. Norman, and David N. Schramm.* **203**, 245, 3-F1

- (1976)
 Fluorine Power and Helium-Shell Flashes. *John M. Scalo and Keith H. Despain*. **203**, 667, 10-B8 (1976)
 Magnetohydrodynamic Phenomena in Collapsing Stellar Cores. *David L. Meier, Richard I. Epstein, W. David Arnett, and David N. Schramm*. **204**, 869, 25-D10 (1976)
 Nucleosynthesis and Star Formation of the Galaxy and Magellanic Clouds. *Gordon L. Olson and Jose H. Peña*. **205**, 527, 35-C8 (1976)
 Synthesis of the Light Elements in Supernovae (Abstract of 1976 May Suppl.). *Richard I. Epstein, W. David Arnett, and David N. Schramm*. **205**, 657, 36-E12 (1976)
 Cosmic-Ray Spallative Origin of the Rare Odd-odd Nuclei, Consistent with Light Element Production. *Kem L. Hainebach, David N. Schramm, and J. B. Blake*. **205**, 920, 40-G12 (1976)
 Measurement and Significance of the Reaction $^{13}\text{C}^+ + ^{12}\text{CO} \rightarrow ^{12}\text{C}^+ + ^{13}\text{CO}$ for Alteration of the $^{13}\text{C}/^{12}\text{C}$ Ratio in Interstellar Molecules. *William D. Watson, Vincent G. Anicich, and Wesley T. Huntress, Jr.* **205**, L165, 42-D11 (1976)
 Big-Bang Nucleosynthesis with Nonzero Lepton Numbers. *A. Yahil and G. Beaudet*. **206**, 26, 43-C1 (1976)
 Stellar Neutrino Pair Emission from De-excitation of Nuclear State via Weak Neutral Currents. *J. P. Crawford, C. J. Hansen, and K. T. Mahanthappa*. **206**, 208, 45-B8 (1976)
 Production of Galactic ^7Li by Slow Mass Loss. *John M. Scalo*. **206**, 795, 54-C1 (1976)
 Constraints on Nucleosynthesis Imposed by Extremely Metal-poor Stars. *Ruth C. Peterson*. **206**, 800, 54-C6 (1976)
 The Long-lived Radioisotopes as Monitors of Stellar, Galactic, and Cosmological Phenomena. *Hubert Reeves and Oliver Johns*. **206**, 958, 56-A7 (1976)
 Gamma-Ray Emission and Nucleosynthesis of Lithium by Young Pulsars. *Donald D. Clayton and Eliahu Dwek*. **206**, L59, 47-E7 (1976)
 Enhanced Abundances of Nitrogen and s-Process Elements in Red Giant Stars in Omega Centauri. *R. J. Dickens and R. A. Bell*. **207**, 506, 64-F14 (1976)
 Stellar Production as a Source of ^3He in the Interstellar Medium. *Robert T. Rood, Gary Steigman, and Beatrice M. Tinsley*. **207**, L57, 62-E9 (1976)
 On the Efficient Computation of Sequences of Solar Models. *Michael J. Newman*. **208**, 224, 76-D1 (1976)
 Chemical Evolution in the Solar Neighborhood. II. Statistical Constraints, Finite Stellar Lifetimes, and Inhomogeneities. *Beatrice M. Tinsley*. **208**, 797, 84-G9 (1976)
 Stellar Neutron Capture in the Thallium Isotopes. *R. L. Macklin and R. R. Winters*. **208**, 812, 85-A10 (1976)
 CNO Abundances and Hydrodynamic Models of the Nova Outburst. IV. Comparison with Observations. *Warren M. Sparks, Sumner Starrfield, and James W. Truran*. **208**, 819, 85-B3 (1976)
 A Possible Alternative to the r-Process. *J. B. Blake and D. N. Schramm*. **209**, 846, 100-A1 (1976)
 On s-Process Abundance Evolution in the Galactic Disk. *H. R. Butler*. **210**, 489, 109-B11 (1976)
 s-Process Studies: Branching and the Time Scale. *Richard A. Ward, Michael J. Newman, and Donald D. Clayton*. **31**, 33, 11-E1 (1976) (Abstr. in **205**, 655, 36-E10)
 Synthesis of the Light Elements in Supernovae. *Richard I. Epstein, W. David Arnett, and David N. Schramm*. **31**, 111, 12-F1 (1976) (Abstr. in **205**, 657, 36-E12)
- Occultations**
 Evidence for "Thermal" X-Rays from the Crab Nebula. *A. Toor, T. M. Palmieri, and F. D. Seward*. **207**, 96, 59-A9 (1976)
 The Occultation of B Scorpii by Jupiter. VII. The Angular Diameters of B Scorpii A1 and A2. *J. L. Elliot, K. Rages, and J. Veverka*. **207**, 994, 71-C1 (1976)
 Further Changes in the Distribution of Density and Radio Scattering in the Solar Corona in 1973. *J. M. Weisberg, J. M. Rankin, R. R. Payne, and C. C. Counselman III*. **209**, 252, 90-F1 (1976)
 Plasma Irregularities in the Comet's Tail. *L. C. Lee*. **210**, 254, 105-F11 (1976)
- Opacities**
 Deep Ice Absorption in a Peculiar Infrared Source. *Martin Cohen*. **203**, 169, 2-G3 (1976)
 A Statistical Method for Treating Molecular Line Opacities. *C. Sneden, H. R. Johnson, and B. M. Krupp*. **204**, 281, 16-B5 (1976)
 Excitation of Pulsations in the CNO Ionization Zone of Luminous Stars. *Richard Stothers*. **204**, 853, 25-C8 (1976)
 Neutrino Opacities at High Temperatures and Densities: Erratum. *David L. Tubbs and David N. Schramm*. **205**, 308, 31-C10 (1976) (Orig. paper in **201**, 467, 82-C11)
 Treatment of Atomic and Molecular Line Blanketing by Opacity Sampling. *Hollis R. Johnson and Brian M. Krupp*. **206**, 201, 45-B1 (1976)
 Are the Broad Continuous Absorption Features of Magnetic Peculiar A Stars Bound-free Discontinuities? *Saul J. Adelman and Pamela R. Wolken*. **207**, L59, 59-F8 (1976)
 On the Origin of the 10 Micron Depressions in the Spectra of Compact Infrared Sources. *John Kwan and Nick Scoville*. **209**, 102, 89-A12 (1976)
 The Ultraviolet Variations of Iota Cassiopeiae. *M. R. Molnar, A. D. Mallama, A. V. Holm, and D. G. Soskey*. **209**, 146, 89-E2 (1976)
 Effects of Neutrino Degeneracy in Supernovae Models. *D. Q. Lamb and C. J. Pethick*. **209**, L77, 96-G8 (1976)
 Compton Scattering Opacities in a Partially Degenerate Electron Plasma at High Temperatures. *J. Robert Buchler and William R. Yueh*. **210**, 440, 108-F3 (1976)
 Radiative Opacity Tables for 40 Stellar Mixtures. *Arthur N. Cox and James E. Tabor*. **31**, 271, 15-G1 (1976) (Abstr. in **206**, 342, 46-E10)
- Photometry**
 Nova Cygni 1975: Narrow-Band Polarimetry and Photometry 0.36-1.7 Microns. *James C. Kemp and Richard J. Rudy*. **203**, L131, 11-E13 (1976)
 Further Evidence Concerning the Local Density of Red Dwarfs. *D. Weistrop*. **204**, 113, 14-C7 (1976)
 On the Nature of IRC +10420. *Eric R. Craine, William J. Schuster, S. Tapia, and Frederick J. Vrba*. **205**, 802, 39-E1 (1976)
 The Photometric Histories of CRL 2688 (the "Egg" Nebula) and CRL 618. *Elaine W. Gottlieb and Wm. Liller*. **207**, L135, 67-E10 (1976)
 Surface Compositions of the Satellites of Saturn from Infrared Photometry. *David Morrison, Dale P. Cruikshank, Carl B. Pilcher, and George H. Rieke*. **207**, L213, 72-F9 (1976)
 The Distance-Reddening Law for Nova Cygni (1975) = V1500 Cygni. *R. E. Schild*. **209**, L35, 92-C7 (1976)
 Feige 24: A Very Hot White Dwarf. *Albert V. Holm*. **210**, L87, 111-D1 (1976)
 The Galactic Distribution of Interstellar Absorption as Determined from the *Celestscope* Catalog of Ultraviolet Stellar Observations and a New Catalog of *UBV*, *H*-Beta Photoelectric Observations. *William A. Deutschman, Robert J. Davis, and Rudolph E. Schild*. **30**, 97, 3-A2 (1976) (Abstr. in **203**, 284, 4-A12)
 New Color-Magnitude Diagrams for Four Globular Clusters. *William E. Harris, René Racine, and James de Roux*. **31**, 13, 11-B1 (1976) (Abstr. in **205**, 655, 36-E10)
- Planets: Abundances**
 Grains of Anomalous Isotopic Composition from Novae. *D. D. Clayton and F. Hoyle*. **203**, 490, 7-C4 (1976)
 Laboratory Band Strengths of Methane and Their Application to the Atmospheres of Jupiter, Saturn, Uranus, Neptune, and Titan. *Barry L. Lutz, Tobias Owen, and Robert D. Cess*. **203**, 541, 7-G4 (1976)

Planets: Abundances—Continued

- The Ammonia Profile in the Atmosphere of Saturn from Inversion of Its Microwave Emission Spectrum. *George Ohring and Avraham Lacser*. **206**, 622, 51-A8 (1976)
- The Rotation-Vibration Spectrum of HD: Wavelength and Intensity Measurements of the 3-0, 4-0, 5-0, and 6-0 Electric Dipole Bands. *A. R. W. McKellar, W. Goetz, and D. A. Ramsay*. **207**, 663, 66-D6 (1976)
- The 800-1200 Inverse Centimeter Absorption Spectrum of Jupiter. *Stephen T. Ridgway, L. Wallace, and Gerald R. Smith*. **207**, 1002, 71-C11 (1976)
- Detection of O₂ Dayglow Emission from Mars and the Martian Ozone Abundance. *J. F. Noxon, W. A. Traub, N. P. Carleton, and P. Connes*. **207**, 1025, 71-E13 (1976)
- Ethane and Acetylene Abundances in the Jovian Atmosphere. *A. Tokunaga, R. F. Knacke, and T. Owen*. **209**, 294, 91-B2 (1976)

Planets: Atmospheres

- Laboratory Band Strengths of Methane and Their Application to the Atmospheres of Jupiter, Saturn, Uranus, Neptune, and Titan. *Barry L. Lutz, Tobias Owen, and Robert D. Cess*. **203**, 541, 7-G4 (1976)
- On Jovian Temperature Profiles Obtained by Inverting Thermal Spectra. *L. Wallace and Gerald R. Smith*. **203**, 760, 11-B12 (1976)
- The Ammonia Profile in the Atmosphere of Saturn from Inversion of Its Microwave Emission Spectrum. *George Ohring and Avraham Lacser*. **206**, 622, 51-A8 (1976)
- A Model of Jupiter's Sulfur Nebula. *Robert A. Brown*. **206**, L179, 56-G5 (1976)
- The Aerosol Distribution in Uranus' Atmosphere: Interpretation of the Hydrogen Spectrum. *L. Trafton*. **207**, 1007, 71-D3 (1976)
- Detection of O₂ Dayglow Emission from Mars and the Martian Ozone Abundance. *J. F. Noxon, W. A. Traub, N. P. Carleton, and P. Connes*. **207**, 1025, 71-E13 (1976)
- On the 6825 Å Band of Methane. *Barry L. Lutz and Tobias Owen*. **208**, L99, 82-D9 (1976)
- Heterodyne Detection of CO₂ Emission Lines and Wind Velocities in the Atmosphere of Venus. *A. L. Betz, M. A. Johnson, R. A. McLaren, and E. C. Sutton*. **208**, L141, 87-B4 (1976)
- Nonthermal 10 Micron CO₂ Emission Lines in the Atmospheres of Mars and Venus. *M. A. Johnson, A. L. Betz, R. A. McLaren, E. C. Sutton, and C. H. Townes*. **208**, L145, 87-B8 (1976)
- Ethane and Acetylene Abundances in the Jovian Atmosphere. *A. Tokunaga, R. F. Knacke, and T. Owen*. **209**, 294, 91-B2 (1976)
- The Effective Temperature of Uranus. *G. G. Fazio, W. A. Traub, E. L. Wright, F. J. Low, and L. Trafton*. **209**, 633, 96-C7 (1976)
- Recalibration of the Far-Infrared Brightness Temperatures of the Planets. *Edward L. Wright*. **210**, 250, 105-F7 (1976)
- Particles, Environments, and Possible Ecologies in the Jovian Atmosphere. *Carl Sagan and E. E. Salpeter*. **32**, 737, 35-A1 (1976) (Abstr. in **210**, 624, 110-F3)

Planets: General

- Laboratory Band Strengths of Methane and Their Application to the Atmospheres of Jupiter, Saturn, Uranus, Neptune, and Titan. *Barry L. Lutz, Tobias Owen, and Robert D. Cess*. **203**, 541, 7-G4 (1976)

Planets: Interiors**Planets: Jupiter**

- A Local Diffusion Process Associated with the Sweeping of Energetic Particles by Io. *J. D. Huba and C. S. Wu*. **203**, 268, 3-G10 (1976)
- On Jovian Temperature Profiles Obtained by Inverting Thermal Spectra. *L. Wallace and Gerald R. Smith*. **203**, 760, 11-B12 (1976)
- Jovian Sodium Plasma. *Aharon Eviatar, Yuri Mekler, and Ferdinand V. Coroniti*. **205**, 622, 36-C6 (1976)
- Detection of Ionized Sulfur in the Jovian Magnetosphere.

Irena Kupo, Yuri Mekler, and Aharon Eviatar. **205**, L51, 32-E3 (1976)

- A Model of Jupiter's Sulfur Nebula. *Robert A. Brown*. **206**, L179, 56-G5 (1976)
- VLBI Measurements of Jovian S Bursts. *Michel A. Lynch, Thomas D. Carr, and Jorge May*. **207**, 325, 61-D9 (1976)
- Proton Aurora on Io. *Carl B. Pilcher*. **207**, 646, 66-C3 (1976)
- An Interpretation of Jupiter's Decametric Radiation and the Terrestrial Kilometric Radiation as Direct Amplified Gyroemission. *D. B. Melrose*. **207**, 651, 66-C8 (1976)
- The Rotation-Vibration Spectrum of HD: Wavelength and Intensity Measurements of the 3-0, 4-0, 5-0, and 6-0 Electric Dipole Bands. *A. R. W. McKellar, W. Goetz, and D. A. Ramsay*. **207**, 663, 66-D6 (1976)
- The Occultation of B Scorpii by Jupiter. VII. The Angular Diameters of B Scorpii A₁ and A₂. *J. L. Elliot, K. Rages, and J. Veverka*. **207**, 994, 71-C1 (1976)
- The 800-1200 Inverse Centimeter Absorption Spectrum of Jupiter. *Stephen T. Ridgway, L. Wallace, and Gerald R. Smith*. **207**, 1002, 71-C11 (1976)
- Ethane and Acetylene Abundances in the Jovian Atmosphere. *A. Tokunaga, R. F. Knacke, and T. Owen*. **209**, 294, 91-B2 (1976)
- The Effective Temperature of Uranus. *G. G. Fazio, W. A. Traub, E. L. Wright, F. J. Low, and L. Trafton*. **209**, 633, 96-C7 (1976)
- Proton Aurora on Io: Erratum. *Carl B. Pilcher*. **209**, 651, 96-D12 (1976) (Orig. paper in **207**, 646, 66-C3)
- On the Possibility of Nonlinear Phase Bunching Effects in the Extraordinary Mode Decametric Radio Emission of Jupiter. *Michael I. Ratner*. **209**, 945, 101-A8 (1976)
- Quiet-Time Increases of Low-Energy Electrons: The Jovian Origin. *Jacques L'Heureux and Peter Meyer*. **209**, 955, 101-B4 (1976)
- Particles, Environments, and Possible Ecologies in the Jovian Atmosphere. *Carl Sagan and E. E. Salpeter*. **32**, 737, 35-A1 (1976) (Abstr. in **210**, 624, 110-F3)

Planets: Limb Darkening**Planets: Mars**

- Detection of O₂ Dayglow Emission from Mars and the Martian Ozone Abundance. *J. F. Noxon, W. A. Traub, N. P. Carleton, and P. Connes*. **207**, 1025, 71-E13 (1976)
- Nonthermal 10 Micron CO₂ Emission Lines in the Atmospheres of Mars and Venus. *M. A. Johnson, A. L. Betz, R. A. McLaren, E. C. Sutton, and C. H. Townes*. **208**, L145, 87-B8 (1976)

Planets: Mercury**Planets: Neptune****Planets: Pluto****Planets: Radio Radiation**

- VLBI Measurements of Jovian S Bursts. *Michel A. Lynch, Thomas D. Carr, and Jorge May*. **207**, 325, 61-D9 (1976)
- An Interpretation of Jupiter's Decametric Radiation and the Terrestrial Kilometric Radiation as Direct Amplified Gyroemission. *D. B. Melrose*. **207**, 651, 66-C8 (1976)
- Possible Radio Emission from Uranus at 0.5 MHz. *Larry W. Brown*. **207**, L209, 72-F5 (1976)
- On the Possibility of Nonlinear Phase Bunching Effects in the Extraordinary Mode Decametric Radio Emission of Jupiter. *Michael I. Ratner*. **209**, 945, 101-A8 (1976)

Planets: Satellites

- A Local Diffusion Process Associated with the Sweeping of Energetic Particles by Io. *J. D. Huba and C. S. Wu*. **203**, 268, 3-G10 (1976)
- Detection of Ionized Sulfur in the Jovian Magnetosphere. *Irena Kupo, Yuri Mekler, and Aharon Eviatar*. **205**, L51, 32-E3 (1976)
- Proton Aurora on Io. *Carl B. Pilcher*. **207**, 646, 66-C3 (1976)
- Infrared Spectra of the Satellites of Saturn: Identification of Water Ice on Iapetus, Rhea, Dione, and Tethys. *Uwe Fink, Harold P. Larson, T. N. Gautier III, and R. R. Treffers*. **207**, L63, 62-F1 (1976)

- Surface Compositions of the Satellites of Saturn from Infrared Photometry. *David Morrison, Dale P. Cruikshank, Carl B. Pilcher, and George H. Rieke.* **207**, L213, 72-F9 (1976)
- Proton Aurora on Io: Erratum. *Carl B. Pilcher.* **209**, 651, 96-D12 (1976) (Orig. paper in **207**, 646, 66-C3)
- Planets: Saturn**
- Azimuthal Brightness Variations in Saturn's Rings. *Kari Lumme and William M. Irvine.* **204**, L55, 17-E3 (1976)
- The Ammonia Profile in the Atmosphere of Saturn from Inversion of Its Microwave Emission Spectrum. *George Ohring and Avraham Lacser.* **206**, 622, 51-A8 (1976)
- Infrared Spectra of the Satellites of Saturn: Identification of Water Ice on Iapetus, Rhea, Dione, and Tethys. *Uwe Fink, Harold P. Larson, T. N. Gautier III, and R. R. Treffers.* **207**, L63, 62-F1 (1976)
- Surface Compositions of the Satellites of Saturn from Infrared Photometry. *David Morrison, Dale P. Cruikshank, Carl B. Pilcher, and George H. Rieke.* **207**, L213, 72-F9 (1976)
- Planets: Spectra**
- On Jovian Temperature Profiles Obtained by Inverting Thermal Spectra. *L. Wallace and Gerald R. Smith.* **203**, 760, 11-B12 (1976)
- The 800-1200 Inverse Centimeter Absorption Spectrum of Jupiter. *Stephen T. Ridgway, L. Wallace, and Gerald R. Smith.* **207**, 1002, 71-C11 (1976)
- The Aerosol Distribution in Uranus' Atmosphere: Interpretation of the Hydrogen Spectrum. *L. Trafton.* **207**, 1007, 71-D3 (1976)
- Planets: Uranus**
- The Aerosol Distribution in Uranus' Atmosphere: Interpretation of the Hydrogen Spectrum. *L. Trafton.* **207**, 1007, 71-D3 (1976)
- Possible Radio Emission from Uranus at 0.5 MHz. *Larry W. Brown.* **207**, 1209, 72-F5 (1976)
- The Effective Temperature of Uranus. *G. G. Fazio, W. A. Traub, E. L. Wright, F. J. Low, and L. Trafton.* **209**, 633, 96-C7 (1976)
- Planets: Venus**
- Heterodyne Detection of CO₂ Emission Lines and Wind Velocities in the Atmosphere of Venus. *A. L. Betz, M. A. Johnson, R. A. McLaren, and E. C. Sutton.* **208**, L141, 87-B4 (1976)
- Nonthermal 10 Micron CO₂ Emission Lines in the Atmospheres of Mars and Venus. *M. A. Johnson, A. L. Betz, R. A. McLaren, E. C. Sutton, and C. H. Townes.* **208**, L145, 87-B8 (1976)
- The Effective Temperature of Uranus. *G. G. Fazio, W. A. Traub, E. L. Wright, F. J. Low, and L. Trafton.* **209**, 633, 96-C7 (1976)
- Plasmas**
- Stability of a Beam-Plasma System against the Excitation of the Longitudinal Mode around Pulsars. *Satoshi Hinata.* **203**, 223, 3-D5 (1976)
- Investigation of Forbidden Transitions in Argon Ions. *N. W. Jalufka.* **203**, 279, 4-A7 (1976)
- Radiative Cooling of a Low-Density Plasma. *John C. Raymond, Donald P. Cox, and Barham W. Smith.* **204**, 290, 16-C1 (1976)
- A Spinar Model of Cygnus A. *F. Michael Flasar and Philip Morrison.* **204**, 352, 18-C13 (1976)
- Synchrotron or Plasma Process Emission in Narrow-Band Type IV_m Bursts? *A. O. Benz and G. L. Tarnstrom.* **204**, 597, 21-A5 (1976)
- A Nonlinear Theory of Cosmic-Ray Pitch-Angle Diffusion in Homogeneous Magnetostatic Turbulence. *Melvyn L. Goldstein.* **204**, 900, 25-F13 (1976)
- Jovian Sodium Plasma. *Aharon Eviatar, Yuri Mekler, and Ferdinand V. Coroniti.* **205**, 622, 36-C6 (1976)
- Sun and Comets as Sources in an External Flow. *Max K. Wallis and Murray Dryer.* **205**, 895, 40-F1 (1976)
- Relativistic Plasma Turbulence and Its Application to Pulsar Phenomena. *Satoshi Hinata.* **206**, 282, 46-A4 (1976)
- Compressible Magnetic Field Reconnection: A Slow Wave Model. *Chao-Kung Yang and Bengt U. Ö. Sonnerup.* **206**, 570, 50-D4 (1976)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. I. Formulation of the Problem and Method of Solution. *Telemachos Ch. Mouschovias.* **206**, 753, 53-G1 (1976)
- The Existence of an Ultrarelativistic Plasma beyond the Alfvén Cylinder of a Pulsar. *Houshang Ardavan.* **206**, 822, 54-E1 (1976)
- A New Pulsar Atmospheric Model. I. Aligned Magnetic and Rotational Axes. *E. Atlee Jackson.* **206**, 831, 54-E10 (1976)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. II. Results. *Telemachos Ch. Mouschovias.* **207**, 141, 59-E2 (1976)
- Magnetohydrodynamic Turbulence in Disk Plasmas and Magnetic Field Fluctuations in the Galaxy. *Setsumi Ichimaru.* **208**, 701, 83-G1 (1976)
- Stimulated Compton Scattering and Quasar Luminosity. *Albert G. Petschek, S. A. Colgate, and Jeffrey D. Colvin.* **209**, 356, 93-D5 (1976)
- Three-Dimensional Langmuir Wave Instabilities in Type III Solar Radio Bursts. *S. Bardwell and M. V. Goldman.* **209**, 912, 100-F1 (1976)
- Plasma Irregularities in the Comet's Tail. *L. C. Lee.* **210**, 254, 105-F11 (1976)
- Compton Scattering Opacities in a Partially Degenerate Electron Plasma at High Temperatures. *J. Robert Buchler and William R. Yueh.* **210**, 440, 108-F3 (1976)
- A Mechanism for the Production of Pulsar Radio Radiation. *Philip E. Hardee and William K. Rose.* **210**, 533, 109-F1 (1976)
- Radiation from a Hot, Thin Plasma from 1 to 250 Å. *Takako Kato.* **30**, 397, 8-A2 (1976) (Abstr. in **205**, 309, 31-C11)
- The Structure of Supernova Shock Waves. *Thomas A. Weaver.* **32**, 233, 26-A1 (1976) (Abstr. in **208**, 956, 86-E5)
- Polarization**
- Polarization of X-Rays from Cygnus X-1: A Test of the Accretion Disk Model. *Alan P. Lightman and Stuart L. Shapiro.* **203**, 701, 10-E1 (1976)
- Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom.* **203**, L43, 4-F4 (1976)
- Nova Cygni 1975: Narrow-Band Polarimetry and Photometry 0.36-1.7 Microns. *James C. Kemp and Richard J. Rudy.* **203**, L131, 11-E13 (1976)
- OH and H₂O Masers in the Monoceros-R2 Molecular Cloud. *G. R. Knapp and R. L. Brown.* **204**, 21, 13-C1 (1976)
- High-Resolution Radio Observations of Three Supernova Remnants. *R. H. Becker and M. R. Kundu.* **204**, 427, 19-B5 (1976)
- A Polarization Survey of Stars near the Orion Nebula. *Michel Breger.* **204**, 789, 24-E12 (1976)
- Theory of the Polarization of Pulsar Radio Radiation. *W. J. Cocke and A. G. Pacholczyk.* **204**, L13, 17-A13 (1976)
- The Polarization of the Infrared Source CRL 2688 (The Egg Nebula). *Stephen J. Shawl and Massimo Tarenghi.* **204**, L25, 17-B12 (1976)
- The Linear Polarization of BY Draconis. *Robert H. Koch and Raymond J. Pfeiffer.* **204**, L47, 17-D6 (1976)
- Photoelectric Magnitudes and Polarization Data for Possible BL Lacertae Objects. *T. D. Kinman.* **205**, 1, 28-A4 (1976)
- The Generalized Single-Vector Polarization Model for Pulsars. I. Theory. *Dale C. Ferguson.* **205**, 247, 30-F4 (1976)
- On the Nature of IRC +10420. *Eric R. Craine, William J. Schuster, S. Tapia, and Frederick J. Vrba.* **205**, 802, 39-E1 (1976)
- Intrinsic Linear Polarization of Be Stars as a Function of $V \sin i$. *R. Poeckert and J. M. Marlborough.* **206**, 182, 44-G10

Polarization—Continued

- (1976)
- A Reinvestigation of the Scattering Halo of M82 Based on Polarimetric and Isophotal Maps. *Gary D. Schmidt, J. R. P. Angel, and R. H. Cromwell.* **206**, 888, 55-C1 (1976)
- Nonrelativistic Compton Scattering and Models of Quasars. *J. I. Katz.* **206**, 910, 55-D13 (1976)
- The Origin of Optical Polarization in NGC 1068. *J. R. P. Angel, H. S. Stockman, N. J. Woolf, E. A. Beaver, and P. G. Martin.* **206**, L5, 47-A5 (1976)
- Polarization Studies of the Infrared Source CRL 2688 at Visible Wavelengths: Erratum. *Joseph J. Michalsky, Robert A. Stokes, and Philip A. Ekstrom.* **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L43, 4-F4)
- 3.7 and 11.1 Centimeter Observations of the Radio Galaxy 3C 386. *R. H. Becker and M. R. Kundu.* **207**, 29, 58-C7 (1976)
- Systematic Variations in the Wavelength Dependence of Interstellar Circular Polarization. *P. G. Martin and J. R. P. Angel.* **207**, 126, 59-D1 (1976)
- On the Origin of Continuum Polarization in White Dwarfs. *W. H. Ingham, K. Brecher, and I. Wasserman.* **207**, 518, 65-A1 (1976)
- Polarization from a Dust Ring surrounding the Peculiar Be Star HD 45677. *George V. Coyne S.J. and Frederick J. Vrba.* **207**, 790, 69-B1 (1976)
- AO Cassiopeiae: Phase-locked Polarization and the Geometry of the Gas Stream. *Richard J. Rudy and James C. Kemp.* **207**, L125, 67-D13 (1976)
- Theoretical Wavelength Dependence of Polarization in Early-Type Stars. *Bernhard M. Haisch and Joseph P. Cassinelli.* **208**, 253, 76-F3 (1976)
- The Prospects for Astronomical Optical Rotary Dispersion Studies. *P. T. Giguere, L. E. Snyder, and F. S. Richardson.* **208**, 365, 78-G10 (1976)
- Circular Polarization Observations of the Interstellar Magnetic Field. *P. G. Martin and Bruce Campbell.* **208**, 727, 84-B1 (1976)
- Measurement of the X-Ray Polarization of the Crab Nebula. *M. C. Weisskopf, G. G. Cohen, H. L. Kestenbaum, K. S. Long, R. Novick, and R. S. Wolff.* **208**, L125, 86-G8 (1976)
- Are There Spots on Magnetic White Dwarfs? *Egidio Landi Degl'Innocenti.* **209**, 208, 90-B9 (1976)
- The Generalized Single-Vector Polarization Model for Pulsars. II. Fits to Published Observations. *Dale C. Ferguson.* **209**, 606, 96-A5 (1976)
- Optical Polarization Models of Quasi-stellar Objects and BL Lacertae Objects. *Kenneth H. Nordsieck.* **209**, 653, 98-A4 (1976)
- H α Polarization and Line Profiles in White Dwarfs with Strong Magnetic Fields. *Ermanno F. Borra.* **209**, 858, 100-B1 (1976)
- Polarized Radiation in Magnetic White Dwarfs. *Leonard A. Rosi, Robert L. Zimmerman, and James C. Kemp.* **209**, 868, 100-B11 (1976)
- Interpretation of Broad Band Polarimetry of Solar Coronal Transients: Importance of H α Emission. *A. I. Poland and R. H. Munro.* **209**, 927, 100-G2 (1976)
- Night-to-Night Variations in the Optical Polarization of the Nucleus of NGC 1275. *P. G. Martin, J. R. P. Angel, and J. Maza.* **209**, L21, 92-B8 (1976)
- Infrared Polarization of the Galactic Center. *R. W. Capps and R. F. Knacke.* **210**, 76, 103-G10 (1976)
- The Variable Linear Polarization of Cygnus X-1, 1974-1975 Observations. *James C. Kemp, Robert G. Southwick, and Richard J. Rudy.* **210**, 239, 105-E10 (1976)
- Optical Polarization of Nova Monocerotis 1975 (=A0620-00). *Joseph F. Dolan.* **210**, 721, 113-B1 (1976)
- Pulsar Radiation as Polarized Shot Noise. *J. M. Cordes.* **210**, 780, 113-F5 (1976)
- The Polarization of BL Lacertae at Visible and Infrared Wavelengths. *R. F. Knacke, R. W. Capps, and M. Johns.* **210**, L69, 111-B8 (1976)

Proper Motions: see Stars: Stellar Dynamics

Pulsars

- A Possible Optical Identification for PSR 0833-45. *Barry M. Lasker.* **203**, 193, 3-B1 (1976)
- Determining the Stellar Masses in the Binary System Containing the Pulsar PSR 1913+16: Is the Companion a Helium Main-Sequence Star? *David H. Roberts, A. Ronald Masters, and W. David Arnett.* **203**, 196, 3-B6 (1976)
- Tidal Friction in the Binary Pulsar System PSR 1913+16. *S. A. Balbus and K. Brecher.* **203**, 202, 3-B12 (1976)
- Direction of Subpulse Drifting within Pulsar Radio Emission Envelopes. *M. Ruderman.* **203**, 206, 3-C2 (1976)
- Current Flow in Pulsar Magnetospheres. *Andrew Cheng, Malvin Ruderman, and Peter Sutherland.* **203**, 209, 3-C5 (1976)
- Crust-Breaking by Neutron Superfluids and the Vela Pulsar Glitches. *M. Ruderman.* **203**, 213, 3-C9 (1976)
- Stability of a Beam-Plasma System against the Excitation of the Longitudinal Mode around Pulsars. *Satoshi Hinata.* **203**, 223, 3-D5 (1976)
- Magnetospheric Shock Discontinuities in Pulsars. I. Analysis of the Inertial Effects at the Light Cylinder. *Houshang Ardavan.* **203**, 226, 3-D8 (1976)
- Pulsar Geometries. II. Decomposition of the Radiation Pattern. *Ludwig Oster and Wolfgang Sieber.* **203**, 233, 3-E1 (1976)
- New Observations of Pulsed X-Ray Emission from NP 0532. *H. L. Kestenbaum, W. Ku, R. Novick, and R. S. Wolff.* **203**, L57, 8-B11 (1976)
- Observational Constraints on Pulsar Binary Motion. *D. Q. Lamb and F. K. Lamb.* **204**, 168, 14-G9 (1976)
- The Pulsar Equation Including the Inertial Term: Its First Integrals and Its Alfvén Singularity. *Houshang Ardavan.* **204**, 889, 25-F2 (1976)
- Theory of the Polarization of Pulsar Radio Radiation. *W. J. Cocke and A. G. Pacholczyk.* **204**, L13, 17-A13 (1976)
- The Generalized Single-Vector Polarization Model for Pulsars. I. Theory. *Dale C. Ferguson.* **205**, 247, 30-F4 (1976)
- The Optical and X-Ray Surface Brightness of the Crab Nebula. I. A Cosmic-Ray Diffusion Model. *Stephen Lee Weinberg and Joseph Silk.* **205**, 563, 35-F2 (1976)
- The Binary Pulsar: Preexplosion Evolution. *J. Craig Wheeler.* **205**, 578, 35-G3 (1976)
- Arrival-Time Analysis for a Pulsar in a Binary System. *Roger Blandford and Saul A. Teukolsky.* **205**, 580, 35-G5 (1976)
- A Test of Post-Newtonian Conservation Laws in the Binary System PSR 1913+16. *Clifford M. Will.* **205**, 861, 40-C4 (1976)
- The Luminosity Distribution and Total Space Density of Pulsars. *D. H. Roberts.* **205**, L29, 32-B14 (1976)
- Timing Results for Seven Pulsars. *Gordon E. Gullahorn, Robert R. Payne, John M. Rankin, and David W. Richards.* **205**, L151, 42-C13 (1976)
- Pulsar Extinction. *P. A. Sturrock, K. Baker, and J. S. Turk.* **206**, 273, 45-G9 (1976)
- Relativistic Plasma Turbulence and Its Application to Pulsar Phenomena. *Satoshi Hinata.* **206**, 282, 46-A4 (1976)
- The Existence of an Ultrarelativistic Plasma beyond the Alfvén Cylinder of a Pulsar. *Houshang Ardavan.* **206**, 822, 54-E1 (1976)
- A New Pulsar Atmospheric Model. I. Aligned Magnetic and Rotational Axes. *E. Atlee Jackson.* **206**, 831, 54-E10 (1976)
- Discovery of X-Ray Pulsations in SMC X-1. *R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman.* **206**, L25, 47-B13 (1976)
- Further Observations of the Binary Pulsar PSR 1913+16. *J. H. Taylor, R. A. Hulse, L. A. Fowler, G. E. Gullahorn, and J. M. Rankin.* **206**, L53, 47-E1 (1976)
- Gamma-Ray Emission and Nucleosynthesis of Lithium by Young Pulsars. *Donald D. Clayton and Eliahu Dwek.* **206**, L59, 47-E7 (1976)

- Upper Limits for the Visible Counterpart of the Hulse-Taylor Binary Pulsar. *J. Kristian, K. D. Clardy, and J. A. Westphal.* **206**, L143, 56-D12 (1976)
- The Binary Pulsar: Physical Processes, Possible Companions, and Evolutionary Histories. *Larry L. Smarr and Roger Blandford.* **207**, 574, 65-E2 (1976)
- Soft X-Ray Profile and Spectrum of the Supernova Remnant IC 443. *Roger Malina, Michael Lampton, and Stuart Bowyer.* **207**, 894, 70-B11 (1976)
- Meter-Wavelength VLBI. III. Pulsars. *N. R. Vandenberg, T. A. Clark, W. C. Erickson, G. M. Resch, and J. J. Broderick.* **207**, 937, 70-E12 (1976)
- The Period-Pulse-Width Distribution of Pulsars and Their Division into Three Classes. *D. H. Roberts.* **207**, 949, 70-F11 (1976)
- Soft X-Rays from Hercules X-1 During the "Off" State. *G. Fritz, S. Naranan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder.* **207**, L29, 62-C11 (1976)
- Neutron Star Structure: Theory, Observation, and Speculation. *V. R. Pandharipande, D. Pines, and R. A. Smith.* **208**, 550, 80-G13 (1976)
- Dynamical Effects of Possible Solid Cores in Neutron Stars and Degenerate Dwarfs. *G. Baym, D. Q. Lamb, and F. K. Lamb.* **208**, 829, 85-D13 (1976)
- Superfluidity in Neutron Stars. II. After a Period Jump. *George Greenstein.* **208**, 836, 85-C6 (1976)
- Correlation Analyses of Microstructure and Noiselike Intensity Fluctuations from Pulsar 2016+28. *J. M. Cordes.* **208**, 944, 86-D7 (1976)
- Radius of the Vela Pulsar. *George Greenstein and Jeffrey E. McClintock.* **208**, L41, 77-C12 (1976)
- Pulsar AP 2016+28: High-Frequency Periodicity in the Pulse Microstructure. *Valentin Boriakoff.* **208**, L43, 77-D1 (1976)
- X-Ray Observations of the Vela Pulsar: Statistics and Spectrum. *S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank.* **208**, L67, 82-B6 (1976)
- Acceleration of Pulsars by Asymmetric Radiation. II. Theoretical Generalizations and Discussions. *Eugene Tademaru.* **209**, 245, 90-E7 (1976)
- Further Changes in the Distribution of Density and Radio Scattering in the Solar Corona in 1973. *J. M. Weisberg, J. M. Rankin, R. R. Payne, and C. C. Counselman III.* **209**, 252, 90-F1 (1976)
- Meter-Wavelength VLBI. IV. Temporal and Spatial Scattering of the Crab Nebula Pulsar's Radiation. *N. R. Vandenberg.* **209**, 578, 95-F3 (1976)
- A Search of the SAS-2 Data for Pulsed Gamma-Ray Emission from Radio Pulsars. *H. Ögelman, C. E. Fichtel, D. A. Kniffen, and D. J. Thompson.* **209**, 584, 95-F9 (1976)
- Evidence for a Variable Flux of $>10^{11}$ eV Gamma-Rays from NP 0532. *J. E. Grindlay, H. F. Helmken, and T. C. Weekes.* **209**, 592, 95-G3 (1976)
- Pulsar Magnetic Alignment: The Critical Period and Integrated Pulse Width. *P. B. Jones.* **209**, 602, 96-A1 (1976)
- The Generalized Single-Vector Polarization Model for Pulsars. II. Fits to Published Observations. *Dale C. Ferguson.* **209**, 606, 96-A5 (1976)
- Pulsar Average Wave Forms and Hollow-Cone Beam Models. *D. C. Backer.* **209**, 895, 100-D11 (1976)
- Pulsar Geometries. III. The Hollow-Cone Model. *Ludwig Oster and Wolfgang Sieber.* **210**, 220, 105-D5 (1976)
- A Mechanism for the Production of Pulsar Radio Radiation. *Philip E. Hardee and William K. Rose.* **210**, 533, 109-F1 (1976)
- Search for Pulsed Gamma Rays of $\sim 10^{13}$ eV from NP 0532. *R. A. Erickson, R. K. Fickle, and R. C. Lamb.* **210**, 539, 109-F7 (1976)
- Pulsar Radiation as Polarized Shot Noise. *J. M. Cordes.* **210**, 780, 113-F5 (1976)
- Quantum Mechanics**
- Energy Levels of Hydrogen in Magnetic Fields of Arbitrary Strength. *A. R. P. Rau and Larry Spruch.* **207**, 671, 66-E1 (1976)
- Quasars**
- The Distribution of Redshifts of Quasars and Related Objects. *J. W. Knight, P. A. Sturrock, and P. Switzer.* **203**, 286, 5-A5 (1976)
- Four-Point Optical Energy Distributions for Faint BL Lacertae Objects. *S. Tapia, E. R. Craine, and Keith Johnson.* **203**, 291, 5-A10 (1976)
- Transfer of Line Radiation in Differentially Expanding Atmospheres. IV. The Two-Level Atom in Plane-parallel Geometry Solved by the Feautrier Method: Erratum. *P. D. Noerdlinger and G. B. Rybicki.* **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 651, 71-D5)
- The Redshift of 0938+119. *E. A. Beaver, R. Harms, C. Hazard, H. S. Murdoch, R. F. Carswell, and P. F. Strittmatter.* **203**, L5, 4-C6 (1976)
- The Abundance of Nitrogen in QSOs. *G. A. Shields.* **204**, 330, 18-B5 (1976)
- Critique of Bell and Fort's Quasar Model. *Jeno M. Barnothy and George J. Corso.* **204**, 337, 18-B12 (1976)
- Possible Collisional Enhancement of He I $\lambda 5876$ in Seyfert Galaxies and QSOs. *Gordon M. MacAlpine.* **204**, 694, 23-E13 (1976)
- Gravitational-Wave Bursts from the Nuclei of Distant Galaxies and Quasars: Proposal for Detection Using Doppler Tracking of Interplanetary Spacecraft. *Kip S. Thorne and Vladimir B. Braginsky.* **204**, L1, 17-A2 (1976)
- Observations of Radio Sources with Variable Flux Density at 365 and 380 MHz. *William D. Cotton.* **204**, L63, 22-A6 (1976)
- Photoelectric Magnitudes and Polarization Data for Possible BL Lacertae Objects. *T. D. Kinman.* **205**, 1, 28-A4 (1976)
- On the Masses of the Quasi-stellar Objects. *Geoffrey Burbidge and Judith Perry.* **205**, L55, 37-A2 (1976)
- The Structure and Spectrum of Nebulosity Associated with the QSO 4C 37.43. *Alan Stockton.* **205**, L113, 42-A5 (1976)
- Redshifts of Forty-Three Radio Sources. *Marie-Helene Ulrich.* **206**, 364, 48-C2 (1976)
- Nonrelativistic Compton Scattering and Models of Quasars. *J. I. Katz.* **206**, 910, 55-D13 (1976)
- The Evolution of Massive Collapsing Gas Clouds. *Sabastian von Hoerner and William C. Saslaw.* **206**, 917, 55-E6 (1976)
- Rapid Increase in the Size of 3C 345. *M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart.* **206**, L1, 47-A2 (1976)
- Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. *J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönnäng, O. E. H. Rydbeck, and A. E. Niell.* **206**, L75, 52-A2 (1976)
- Observations of High-Redshift QSOs from a Molonglo Faint Source Survey. *Jack A. Baldwin, Harding E. Smith, E. Margaret Burbidge, Cyril Hazard, Hugh S. Murdoch, and David L. Jauncey.* **206**, L83, 52-A13 (1976)
- 3C 68.1: A Very Red QSO with an Intermediate Redshift. *A. Boksenberg, R. F. Carswell, and J. B. Oke.* **206**, L121, 56-C2 (1976)
- A Survey for Emission-Line Galaxies and Quasars. III. A List of Nine New Optically Selected QSOs with $2.5 < z < 3.1$. *Malcolm G. Smith.* **206**, L125, 56-C5 (1976)
- TV Spectroscopy of Absorption Lines in the Far-Red of PHL 957. *G. R. Gilbert, J. R. P. Angel, S. A. Grandi, G. D. Coleman, P. A. Strittmatter, R. H. Cromwell, and E. B. Jensen.* **206**, L129, 56-C12 (1976)
- Stability of Gas Clouds near Quasi-stellar Objects. *William G. Mathews.* **207**, 351, 63-A12 (1976)

Quasars—Continued

- An X-Ray Survey of BL Lacertae Objects. *Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidsen, Keith O. Mason, and Peter W. Sanford.* **207**, 359, 63-B6 (1976)
- On Schmidt's V_m Estimator and Other Estimators of Luminosity Functions. *James E. Felten.* **207**, 700, 68-B5 (1976)
- Some Remarks concerning Lyman Continuum Emission in Quasar Spectra. *Kris Davidson.* **207**, 710, 68-C1 (1976)
- Redshifts of Southern Radio Sources. *Bruce A. Peterson, David L. Jauncey, Alan E. Wright, and James J. Condon.* **207**, L5, 62-A6 (1976)
- 1749+70.1/NGC 6503: A New Quasar/Galaxy Pair. *Patrick C. Crane and R. M. Price.* **207**, L21, 62-C1 (1976)
- Optical Spectrum and Redshifts of a Quasar of Extremely High Intrinsic Luminosity: B2 1225+31. *Marie-Helene Ulrich.* **207**, L73, 67-A2 (1976)
- The Absorption Spectrum of the Quasar PHL 1222. *R. E. Williams and R. J. Weymann.* **207**, L143, 72-A2 (1976)
- Luminosities of Seyfert Galaxies and QSOs. *Daniel W. Weedman.* **208**, 30, 74-C7 (1976)
- Confinement and Internal Structure of Radiatively Accelerated Quasar Clouds. *Ray Weymann.* **208**, 286, 78-B1 (1976)
- Identification and Redshift of the Triple Radio Source 3C 154. *Hyron Spinrad and James Liebert.* **208**, 292, 78-B7 (1976)
- On the Reality of Periodicities in the Redshift Distribution of Emission-Line Objects. *Richard F. Green and Douglas O. Richstone.* **208**, 639, 83-A4 (1976)
- Cloud Acceleration by Cosmic Rays in the Vicinity of Compact Luminous Objects. *Jean A. Eilek and Lawrence J. Caroff.* **208**, 887, 85-G2 (1976)
- Paschen-Alpha in 3C 273. *G. L. Grasdalén.* **208**, L11, 77-A11 (1976)
- 3C 286: A Cosmological QSO? *A. M. Wolfe, J. J. Broderick, J. J. Condon, and K. J. Johnston.* **208**, L47, 82-A2 (1976)
- Observational Evidence against a Time Variation in Planck's Constant. *Jan-Erik Solheim, Thomas G. Barnes III, and Harlan J. Smith.* **209**, 330, 93-B1 (1976)
- Stimulated Compton Scattering and Quasar Luminosity. *Albert G. Petschek, S. A. Colgate, and Jeffrey D. Colvin.* **209**, 356, 93-D5 (1976)
- Optical Polarization Models of Quasi-stellar Objects and BL Lacertae Objects. *Kenneth H. Nordsieck.* **209**, 653, 98-A4 (1976)
- Shot Noise in 3C 273. *G. G. Fahlman and Tad J. Ulrych.* **209**, 663, 98-B1 (1976)
- Observations of Radio Sources with Variable Flux Density at 365 and 380 MHz: Erratum. *William D. Cotton.* **209**, L53, 92-D10 (1976) (Orig. paper in **204**, L63, 22-A6)
- On the Apparent Absence of Evolution of Quasi-stellar Radio Sources with Flat Radio Spectra. *Maarten Schmidt.* **209**, L55, 96-F2 (1976)
- On the Interpretation of Fe II Emission Profiles in Seyfert Galaxies and QSOs. *Roger Ptak and Ronald Stoner.* **210**, 25, 103-C4 (1976)
- The Emission-Line Spectra of Nine Newly Discovered, Optically Selected Quasars with $2.5 < z < 3.1$. *Patrick S. Osmer and Malcolm G. Smith.* **210**, 267, 105-G10 (1976)
- Redshift Doublets in QSO Absorption Spectra. *Alan H. Karp.* **210**, 279, 107-A4 (1976)
- The Nature of the Nebulosity around 3C 48. *Jacqueline Bergeron.* **210**, 287, 107-A12 (1976)
- Comments on "The Composite Hubble Diagram". *S. L. O'Dell and D. H. Roberts.* **210**, 294, 107-B5 (1976)
- Model Galactic Coronae: Ionization Structure and Absorption-Line Spectra. *Jon G. Weisheit and Lee A. Collins.* **210**, 299, 107-B10 (1976)
- Spectroscopy of QSO Pairs. *J. G. Bolton, B. A. Peterson, Beverley J. Wills, and D. Wills.* **210**, L1, 106-B2 (1976)
- A Quasar near a Companion Galaxy, NGC 5296. *Halton Arp.* **210**, L59, 111-A11 (1976)
- Spectroscopy of 206 QSO Candidates and Radio Galaxies. *D. Wills and Beverley J. Wills.* **31**, 143, 13-B1 (1976) (Abstr. in **205**, 658, 36-E13)
- Emission-Line Galaxies and Quasars. II. The Classification Systems and List N1, Declination $\leq -27^\circ 5'$, Galactic Latitude $\geq +20^\circ$. *Malcolm G. Smith, Cecilia Aguirre, and Mario Zemelman.* **32**, 217, 25-F1 (1976) (Abstr. in **208**, 955, 86-E4)
- The University of Texas Low-Frequency Variable Radio Source Survey. *William D. Cotton.* **32**, 467, 30-E1 (1976) (Abstr. in **209**, 648, 96-D9)

Radar Astronomy

Radial Velocities

Effects of Tidal Distortion on Binary-Star Velocity Curves and Ellipsoidal Variation. *Robert E. Wilson and Sabatino Sofia.* **203**, 182, 3-A2 (1976)

An Optical Search for Ionized Hydrogen in Globular Clusters. *Malcolm G. Smith, James E. Hesser, and Stephen J. Shawl.* **206**, 66, 43-E13 (1976)

Noncircular Motions in the Perseus Spiral Arm. *Roberta M. Humphreys.* **206**, 114, 44-B6 (1976)

On the Stellar Velocity of Long-Period Variables and OH Maser Stars. *Mark J. Reid.* **207**, 784, 69-A8 (1976)

Planetary Nebulae in Local Group Galaxies. III. Radial Velocity Observations of H II Regions in the M32 Field. *Holland C. Ford and David C. Jenner.* **208**, 683, 83-E10 (1976)

The Stellar Velocity of Long-Period Variables. *Mark J. Reid and Dale F. Dickinson.* **209**, 505, 94-G8 (1976)

Evolved Stars in Open Clusters. *Gretchen L. Harris.* **30**, 451, 8-F1 (1976) (Abstr. in **205**, 309, 31-C11)

Radiative Transfer

Radiative Transfer in Spherical Circumstellar Dust Envelopes. IV. The Infrared Emissivity Profile and Composition of the Dust in NGC 7027. *John P. Apruzese.* **203**, 177, 2-G11 (1976)

Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. II. Picket-Fence Models. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer.* **203**, 647, 10-A2 (1976)

Formation of Spectral Lines with Partial Frequency Redistribution. *J. N. Heasley and F. Kneer.* **203**, 660, 10-B2 (1976)

Transfer of Line Radiation in Differentially Expanding Atmospheres. IV. The Two-Level Atom in Plane-parallel Geometry Solved by the Feautrier Method: Erratum. *P. D. Noerdlinger and G. B. Rybicki.* **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 651, 71-D5)

Probabilistic Radiative Transfer: An Integral-Equation Approach. *R. Grant Athay.* **204**, 160, 14-G1 (1976)

A Two-Temperature Accretion Disk Model for Cygnus X-1: Structure and Spectrum. *S. L. Shapiro, A. P. Lightman, and D. M. Eardley.* **204**, 187, 15-B1 (1976)

Radiative Transport in Circumstellar Dust Shells. *Ronald E. Taam and Richard D. Schwartz.* **204**, 842, 25-B11 (1976)

An Alternative Formulation of the Complete Linearization Method for the Solution of Non-LTE Transfer Problems. *L. H. Auer and J. N. Heasley.* **205**, 165, 29-F8 (1976)

Structure and Spectrum of Quiescent Prominences: Energy Balance Spectrum. *J. N. Heasley and Dimitri Mihalas.* **205**, 273, 31-A2 (1976)

Exact Evolution of Photons in an Anisotropic Cosmology with Scattering. *William H. Press.* **205**, 311, 33-A4 (1976)

Mass Loss by Cool Carbon Stars. *L. B. Lucy.* **205**, 482, 34-G4 (1976)

Resonance-Line Transfer with Partial Redistribution. VIII. Solution in the Comoving Frame for Moving Atmospheres. *Dimitri Mihalas, R. A. Shine, P. B. Kunasz, and D. G. Hummer.* **205**, 492, 35-A1 (1976)

Radiative Shock Dynamics. I. The Lyman Continuum. *Richard I. Klein, Robert F. Stein, and Wolfgang Kalkofen.* **205**, 499, 35-A8 (1976)

- A Tensor Formulation of the Equation of Transfer for Spherically Symmetric Flows. *Bernhard M. Haisch*. **205**, 520, 35-C1 (1976)
- Treatment of Atomic and Molecular Line Blanketing by Opacity Sampling. *Hollis R. Johnson and Brian M. Krupp*. **206**, 201, 45-B1 (1976)
- Enhanced Effects of Starlight on the Interstellar Medium. *Humberto Gerola and Robert A. Schwartz*. **206**, 452, 49-B9 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. III. Effect of Aberration and Advection Terms. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer*. **206**, 515, 49-G5 (1976)
- Infrared Sources in Molecular Clouds. *N. Z. Scoville and John Kwan*. **206**, 718, 53-D7 (1976)
- Transfer of X-Rays through a Spherically Symmetric Gas Cloud. *Stephen Hatchett, James Buff, and Richard McCray*. **206**, 847, 54-F12 (1976)
- Neutral Helium Emission in Wolf-Rayet Envelopes. *William R. Oegerle and David Van Blerkom*. **206**, L50, 44-E5 (1976)
- The Equations of Photohydrodynamics. *S.-H. Hsieh and E. A. Spiegel*. **207**, 244, 60-E12 (1976)
- Departures from LTE in the Fundamental Bands of CO in Cool Stars. *D. F. Carbon, R. W. Milkey, and J. N. Heasley*. **207**, 253, 60-F7 (1976)
- Stability of Gas Clouds near Quasi-stellar Objects. *William G. Mathews*. **207**, 351, 63-A12 (1976)
- The Spectrum of Portions of Diffuse Nebulae Shadowed from the Central Star. *John S. Mathis*. **207**, 442, 64-A11 (1976)
- Solar Models of Low Neutrino Counting Rate: Energy Transport by Processes Other than Radiative Transfer. *Michael J. Newman and William A. Fowler*. **207**, 601, 65-G1 (1976)
- Radiative Transfer in Spherical Circumstellar Dust Envelopes. V. Theoretical Circumstellar Graphite and Silicate Emission Spectra. *John P. Apruzese*. **207**, 799, 69-B11 (1976)
- Excitation and Ionization of Helium in the Solar Atmosphere. *Eugene H. Avrett, Jorge E. Vernazza, and Jeffrey L. Linsky*. **207**, L199, 72-E7 (1976)
- Theoretical Wavelength Dependence of Polarization in Early-Type Stars. *Bernhard M. Haisch and Joseph P. Cassinelli*. **208**, 253, 76-F3 (1976)
- Confinement and Internal Structure of Radiatively Accelerated Quasar Clouds. *Ray Weymann*. **208**, 286, 78-B1 (1976)
- The Effect of Suprathermal Protons on the Physical Conditions in Seyfert Galaxy Nuclei. II. *Ronald Stoner and Roger Ptak*. **208**, 298, 78-B12 (1976)
- Approximate Solutions of Radiative Transfer in Dusty Nebulae. II. Hydrogen and Helium. *Roger A. Dana and Vahé Petrosian*. **208**, 354, 78-F13 (1976)
- Sodium Line Formation in Arcturus. II. The Use of Empirical and Opacity Sampling Models and the Nature of Partial Redistribution Effects. *Walter L. Kelch and Robert W. Milkey*. **208**, 428, 79-E12 (1976)
- Lyman-Alpha Emission from Nonthermal Proton Beams. *F. Q. Orrall and J. B. Zirker*. **208**, 618, 81-F1 (1976)
- Radiation Transport and Non-LTE Analysis of Interstellar Molecular Lines. I. Carbon Monoxide. *Chun Ming Leung and Harvey S. Liszt*. **208**, 732, 84-B6 (1976)
- Radiation Transport in Dense Interstellar Dust Clouds. II. Infrared Emission from Molecular Clouds Associated with H II Regions. *Chun Ming Leung*. **209**, 75, 88-F12 (1976)
- Meter-Wavelength VLBI. IV. Temporal and Spatial Scattering of the Crab Nebula Pulsar's Radiation. *N. R. Vandenberg*. **209**, 578, 95-F3 (1976)
- A Banach Space Analysis of the Chandrasekhar *H*-Equation. *R. L. Bowden and P. F. Zweifel*. **210**, 178, 105-A4 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. IV. Frequency-dependent Source Functions for Scattering by Atoms and Electrons. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer*. **210**, 419, 108-D8 (1976)
- Radiative Transfer in Circumstellar Dust Shells. *C. A. Harvel*. **210**, 862, 114-E7 (1976)
- Structure of the Solar Chromosphere. II. The Underlying Photosphere and Temperature-Minimum Region. *Jorge E. Vernazza, Eugene H. Avrett, and Rudolf Loeser*. **30**, 1, 1-A2 (1976) (Abstr. in **202**, 844, 99-G14)
- The Ionization of A Low-Density Intercloud Medium by a Single O Star. *Bruce G. Elmegreen*. **32**, 147, 23-G1 (1976) (Abstr. in **208**, 273, 76-G11)
- Radio Sources: Extended**
- Radio Continuum Observations of NML Cygni. *P. C. Gregory and E. R. Seaquist*. **204**, 626, 21-C5 (1976)
- Submillimeter Observations of NGC 2024, OMC-2, and Mon R-2. *H. S. Hudson and B. T. Soifer*. **206**, 100, 44-A5 (1976)
- 3.7 and 11.1 Centimeter Observations of the Radio Galaxy 3C 386. *R. H. Becker and M. R. Kundu*. **207**, 29, 58-C7 (1976)
- H₂O and 22 GHz Continuum Observations of M17. *Charles J. Lada, Dale F. Dickinson, C. A. Gottlieb, and E. L. Wright*. **207**, 113, 59-C1 (1976)
- The Radio Brightness Distribution of Eight Markarian Galaxies. *R. A. Sramek and H. M. Tovmassian*. **207**, 725, 68-D5 (1976)
- Abundance Gradients in Extragalactic H II Regions and Internal Absorption by Dust. *Craig L. Sarazin*. **208**, 323, 78-D9 (1976)
- Meter-Wavelength VLBI. IV. Temporal and Spatial Scattering of the Crab Nebula Pulsar's Radiation. *N. R. Vandenberg*. **209**, 578, 95-F3 (1976)
- Radio Sources: General**
- Compact Radio Sources in the Directions of Rich Clusters of Galaxies. *Frazer N. Owen and Lawrence Rudnick*. **203**, 307, 5-B13 (1976)
- In Situ* Particle Acceleration and Physical Conditions in Radio Tail Galaxies. *A. G. Pacholczyk and John S. Scott*. **203**, 313, 5-C6 (1976)
- Simultaneous Radio and Optical Observations of UV Ceti-Type Flare Stars. *S. R. Spangler and T. J. Moffett*. **203**, 497, 7-C11 (1976)
- Neutral Hydrogen in the W41 Region. *Courtney P. Gordon, Kurtiss J. Gordon, and Michael R. Jacobson*. **203**, 593, 9-C13 (1976)
- Cool Stellar Populations in E/S0 Galaxies and a Possible Outburst in M87. *Robert W. O'Connell*. **203**, L1, 4-C2 (1976)
- Radio Emission from the X-Ray Source A02620-00. *Frazer N. Owen, Thomas J. Balonek, John Dickey, Yervant Terzian, and S. T. Gottesman*. **203**, L15, 4-D6 (1976)
- Radio Emission from the Wolf-Rayet Binary γ^2 Velorum. *E. R. Seaquist*. **203**, L35, 4-E11 (1976)
- 3C 303: A Source with Unusual Radio and Optical Properties. *P. P. Kronberg*. **203**, L47, 8-B2 (1976)
- Head-Tail Radio Sources in Clusters of Galaxies. *Lawrence Rudnick and Frazer N. Owen*. **203**, L107, 11-D5 (1976)
- Optical Properties of the Radio Source PKS 0123-01 (3C 40) in Abell 194. *S. M. Simkin*. **204**, 251, 15-F10 (1976)
- Critique of Bell and Fort's Quasar Model. *Jeno M. Barnothy and George J. Corso*. **204**, 337, 18-B12 (1976)
- A Spinal Model of Cygnus A. *F. Michael Flasar and Philip Morrison*. **204**, 352, 18-C13 (1976)
- High-Resolution Radio Observations of Three Supernova Remnants. *R. H. Becker and M. R. Kundu*. **204**, 427, 19-B5 (1976)
- Radio Synthesis Observations of Planetary Nebulae. II. A Search For Sub-Arcsecond Structure. *Bruce Balick and Yervant Terzian*. **204**, 441, 19-C5 (1976)
- High-Frequency Structure of Ooty Occultation Sources. I. Sources with Central Components. *T. K. Menon*. **204**, 717, 23-G7 (1976)
- An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. *F. Seward, G. Burginon, R.*

Radio Sources: General—Continued

- Grader, R. Hill, T. Palmieri, F. Stoering, and A. Toor. **205**, 238, 30-E8 (1976)
- The Log N -Log S Curve for 3CR Radio Galaxies and the Problem of Identifying Faint Radio Galaxies. G. R. Burbidge and J. V. Narlikar. **205**, 329, 33-B8 (1976)
- Explosions in Galactic Nuclei and the Formation of Double Radio Sources. Robert H. Sanders. **205**, 335, 33-C1 (1976)
- The Problem of Spiral Galaxies and Satellite Radio Sources. Halton Arp, Roland Carpenter, Samuel Gulkis, and Michael Klein. **205**, 721, 38-E12 (1976)
- Radio Sources with Wide-Angle Tails in Abell Clusters of Galaxies. Frazer N. Owen and Lawrence Rudnick. **205**, L1, 32-A2 (1976)
- Non-diffusive Propagation of Cosmic Rays in the Solar System and in Extragalactic Radio Sources. James A. Earl. **206**, 301, 46-B9 (1976)
- Spectrophotometric Observations of N Galaxies at Large Redshift: PKS 0353+027, 3C 99, 3C 467. Harding E. Smith, Hyron Spinrad, and Richard Hunstead. **206**, 345, 48-A4 (1976)
- The Distant N Galaxy 3C 318. Hyron Spinrad and Harding E. Smith. **206**, 355, 48-B4 (1976)
- Radio and Optical Observations of the Radio Source OX 029. Eric R. Craine and John W. Warner. **206**, 359, 48-B10 (1976)
- Redshifts of Forty-Three Radio Sources. Marie-Helene Ulrich. **206**, 364, 48-C2 (1976)
- Accurate Positions of OH Emission Sources. N. J. Evans II, Richard M. Crutcher, and W. J. Wilson. **206**, 440, 49-A10 (1976)
- The Optical Spectra of 3C 227 and Other Broad-Line Radio Galaxies. D. E. Osterbrock, A. T. Koski, and M. M. Phillips. **206**, 898, 55-D1 (1976)
- The Evolution of Massive Collapsing Gas Clouds. Sebastian von Hoerner and William C. Saslaw. **206**, 917, 55-E6 (1976)
- Cygnus A at 8.5 Millimeter Wavelength. O. Hachenberg, E. Fürst, W. Harth, P. Steffen, W. Wilson, and W. Hirth. **206**, L19, 47-B6 (1976)
- PKS 0116+082 and 3C 330: Two Distant Cluster Radio Galaxies. Hyron Spinrad, James Liebert, Harding E. Smith, and Richard Hunstead. **206**, L79, 52-A6 (1976)
- Radio-Frequency Limits to the Abundance of Intergalactic Neutral Hydrogen. Kenneth R. Lang. **206**, L91, 52-B11 (1976)
- 3C 68.1: A Very Red QSO with an Intermediate Redshift. A. Boksenberg, R. F. Carswell, and J. B. Oke. **206**, L121, 56-C2 (1976)
- A Model for the Radio Outbursts of Cygnus X-3. E. R. Seaquist. **207**, 88, 59-A1 (1976)
- 3 Millimeter and 350 Micron Continuum Observations of the DR-21 and Sagittarius B2 Regions. G. Righini, M. Simon, and R. R. Joyce. **207**, 119, 59-C7 (1976)
- Cosmic-Ray Acceleration and the Radio Evolution of Cassiopeia A. Roger A. Chevalier, John W. Robertson, and John S. Scott. **207**, 450, 64-B5 (1976)
- Meter-Wavelength VLBI. III. Pulsars. N. R. Vandenberg, T. A. Clark, W. C. Erickson, G. M. Resch, and J. J. Broderick. **207**, 937, 70-E12 (1976)
- Redshifts of Southern Radio Sources. Bruce A. Peterson, David L. Jauncey, Alan E. Wright, and James J. Condon. **207**, L5, 62-A6 (1976)
- The Cluster of Galaxies Abell 2255. M. Tarenghi and John S. Scott. **207**, L9, 62-A10 (1976)
- 6 Centimeter Observations of Radio Galaxies over a 228 Kilometer Baseline. R. C. Walker, K. Y. Lo, B. F. Burke, K. J. Johnston, and J. M. Moran. **208**, 296, 78-B10 (1976)
- A Computer Model of the Origin of H I Radial Velocity Asymmetries in M31. Gene G. Byrd. **208**, 688, 83-F1 (1976)
- Radio Sources in the Field of Globular Clusters. Hugh M. Johnson. **208**, 706, 83-G6 (1976)
- Radio Trails in the Slingshot Theory. Mauri Valtonen. **209**, 35, 88-C12 (1976)
- A Model for the Centimeter-Excess Radio Sources. S. E. Okoye. **209**, 362, 93-D6 (1976)
- Radio-Optical Candidates for the High-Latitude X-Ray Sources 3U 1555+27 and 3U 1809+50. Neta A. Bahcall, D. E. Harris, and R. G. Strom. **209**, L17, 92-B3 (1976)
- Physics of Compact Radio Sources. I. Particle Acceleration and Flux Variations. A. G. Pacholczyk and John S. Scott. **210**, 311, 107-C8 (1976)
- On the Aggregate Flux of Weak Point Sources at 1404 MHz. S. J. Goldstein, Jr., A. P. Marscher, and R. T. Rood. **210**, 321, 107-D4 (1976)
- Energy Balance of the Infrared Radiation in Planetary Nebulae. K. V. K. Iyengar and K. S. Krishna Swamy. **210**, 518, 109-D13 (1976)
- A Mechanism for the Production of Pulsar Radio Radiation. Philip E. Hardee and William K. Rose. **210**, 533, 109-F1 (1976)
- Photography of 3CR Radio Source Fields: Three New Optical Identifications. Harding E. Smith, E. Margaret Burbidge, and Hyron Spinrad. **210**, 627, 112-A4 (1976)
- Detection of Nuclear Gamma Rays from Centaurus A. R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes. **210**, 631, 112-B4 (1976)
- The Detection of Radio Emission from the RS CVn Binary HR 1099. Frazer N. Owen, T. W. Jones, and D. M. Gibson. **210**, L27, 106-C10 (1976)
- The Optical Structure of Cygnus A. Sidney van den Bergh. **210**, L63, 111-B1 (1976)
- Spectra of Some Ohio Radio Sources: List V. M. R. Gearhart, J. D. Kraus, and B. H. Andrew. **30**, 337, 6-D1 (1976) (Abstr. in **204**, 313, 16-D10)
- Spectroscopy of 206 QSO Candidates and Radio Galaxies. D. Wills and Beverley J. Wills. **31**, 143, 13-B1 (1976) (Abstr. in **205**, 658, 36-E13)
- Radio Emission in Peculiar Galaxies. Jack W. Sulentic. **32**, 171, 25-A2 (1976) (Abstr. in **208**, 956, 86-E5)
- Detailed Observations of the M17 Molecular Cloud Complex. Charles J. Lada. **32**, 603, 33-C1 (1976) (Abstr. in **210**, 622, 110-F1)
- Radio Sources: Lines**
- Observation of the 616-515 Transitions of Acetaldehyde in Sagittarius B2. W. Gilmore, M. Morris, D. R. Johnson, F. J. Lovas, B. Zuckerman, B. E. Turner, and P. Palmer. **204**, 43, 13-D10 (1976)
- Recombination-Line Observations of W3 (OH). I. A Model for OH and H₂O Emission. V. A. Hughes and M. R. Viner. **204**, 55, 13-E9 (1976)
- Carbon Recombination Line Observations of the Sharpless 140 Region. G. R. Knapp, Robert L. Brown, T. B. H. Kuiper, and R. K. Kakar. **204**, 781, 24-E5 (1976)
- Cyanoacetylene in Dense Interstellar Clouds. M. Morris, B. E. Turner, Patrick Palmer, and B. Zuckerman. **205**, 82, 28-G9 (1976)
- Observations of 10.5 GHz Recombination Lines toward Orion A. I. A. Ahmad. **205**, 379, 33-F8 (1976)
- Observations of Heavy-Element Recombination Lines in the Rho Ophiuchi Dark Cloud at 13 Centimeter Wavelength. G. R. Knapp, T. B. H. Kuiper, and Robert L. Brown. **206**, 109, 44-B1 (1976)
- On the Derivation of Nebular Electron Temperatures from Radio Recombination Line Observations. Felix J. Lockman and Robert L. Brown. **207**, 436, 64-A5 (1976)
- On the Stellar Velocity of Long-Period Variables and OH Maser Stars. Mark J. Reid. **207**, 784, 69-A8 (1976)
- Detection, Identification, and Observations of Interstellar H¹³CO⁺. L. E. Snyder, J. M. Hollis, F. J. Lovas, and B. L. Ulich. **209**, 67, 88-F2 (1976)
- A Survey of Ionized Hydrogen in the Plane of the Galaxy. Felix J. Lockman. **209**, 429, 94-B6 (1976)
- A Two-Component Model for the Orion A Carbon Radio Recombination Lines. I. A. Ahmad. **209**, 462, 94-D11 (1976)
- The Stellar Velocity of Long-Period Variables. Mark J. Reid

- and Dale F. Dickinson. **209**, 505, 94-G8 (1976)
- Millimeter Emission Lines in Orion A. Frank J. Lovas, Donald R. Johnson, David Buhl, and Lewis E. Snyder. **209**, 770, 99-B6 (1976)
- Radio Observations of OH in Comet West 1975n. L. E. Snyder, J. C. Webber, R. M. Crutcher, and G. W. Swenson, Jr. **209**, L49, 92-D6 (1976)
- Radio Detection of Interstellar DCO⁺. J. M. Hollis, L. E. Snyder, F. J. Lovas, and D. Buhl. **209**, L83, 97-A1 (1976)
- A Radio Recombination-Line Study of the Planetary Nebula NGC 7027. Eric J. Chaisson and Matthew A. Malkan. **210**, 108, 104-C1 (1976)
- Absolute Calibration of Millimeter-Wavelength Spectral Lines. B. L. Ulich and R. W. Haas. **30**, 247, 5-C1 (1976) (Abstr. in **202**, 312, 16-D9)
- Radio Observations of Interstellar CH. I. O. E. H. Rydbeck, E. Kollberg, A. Hjalmarsen, A. Sime, J. Elldér, and W. M. Irvine. **31**, 333, 17-D1 (1976) (Abstr. in **206**, 963, 56-A12)
- Radio Sources: Spectra**
- Compact Radio Sources in the Directions of Rich Clusters of Galaxies. Frazer N. Owen and Lawrence Rudnick. **203**, 307, 5-B13 (1976)
- The Radio Spectra of Markarian Galaxies. Gabriel Kojoian, Richard A. Sramek, Dale F. Dickinson, H. Tovmassian, and C. R. Purton. **203**, 323, 5-D1 (1976)
- The Redshift of 0938+119. E. A. Beaver, R. Harms, C. Hazard, H. S. Murdoch, R. F. Carswell, and P. F. Strittmatter. **203**, L5, 4-C6 (1976)
- High-Frequency Structure of Ooty Occultation Sources. I. Sources with Central Components. T. K. Menon. **204**, 717, 23-G7 (1976)
- Observations of High-Redshift QSOs from a Molonglo Faint Source Survey. Jack A. Baldwin, Harding E. Smith, E. Margaret Burbidge, Cyril Hazard, Hugh S. Murdoch, and David L. Jauncey. **206**, L83, 52-A13 (1976)
- Radio Sources in the Field of Globular Clusters. Hugh M. Johnson. **208**, 706, 83-G6 (1976)
- The Extreme High-Velocity H₂O Maser Features in W49 N, W51, and Sagittarius B2. Mark Morris. **210**, 100, 104-B6 (1976)
- A Continuous Injection Model for the Supernova Remnants Cassiopeia A and the Crab Nebula. F. W. Peterson. **210**, 723, 113-B3 (1976)
- Spectra of Some Ohio Radio Sources: List V. M. R. Gearhart, J. D. Kraus, and B. H. Andrew. **30**, 337, 6-D1 (1976) (Abstr. in **204**, 313, 16-D10)
- Radio Emission in Peculiar Galaxies. Jack W. Sulentic. **32**, 171, 25-A2 (1976) (Abstr. in **208**, 956, 86-E5)
- Radio Sources: 21 cm Radiation**
- The Small-Scale Structure of Interstellar Hydrogen. Eric W. Greisen. **203**, 371, 5-G7 (1976)
- Neutral Hydrogen in the W41 Region. Courtney P. Gordon, Kurtiss J. Gordon, and Michael R. Jacobson. **203**, 593, 9-C13 (1976)
- Small-Scale Structure in High-Velocity Clouds. Eric W. Greisen and Thomas R. Cram. **203**, L119, 11-E3 (1976)
- Rolling Motions in an Inner Spiral Arm. F. M. Strauss and W. Poeppel. **204**, 94, 14-A11 (1976)
- H I in Early-Type Galaxies. II. Mass Loss and Galactic Winds. S. M. Faber and J. S. Gallagher. **204**, 365, 18-D12 (1976)
- An Almost Complete Survey of 21 Centimeter Radiation for $|b| \geq 10^\circ$. III. The Interdependence of H I, Galaxy Counts, Reddening, and Galactic Latitude. Carl Heiles. **204**, 379, 18-E11 (1976)
- Gas Motions in the Center of the Galaxy NGC 253 from H I Line Interferometry. S. T. Gottesman, R. Lucas, L. Weliachew, and M. C. H. Wright. **204**, 699, 23-F4 (1976)
- Aperture Synthesis of Neutral Hydrogen in the Galaxy M33. D. H. Rogstad, M. C. H. Wright, and I. A. Lockhart. **204**, 703, 23-F8 (1976)
- Radial Velocities and Masses of Galaxies in Groups from 21-Centimeter Line Observations. Herbert J. Rood and John R. Dickel. **205**, 346, 33-C12 (1976)
- Dynamics of CO Molecular Clouds in the Galaxy. Frank N. Bash and William L. Peters. **205**, 786, 39-C11 (1976)
- A Computer Model of the Origin of H I Radial Velocity Asymmetries in M31. Gene G. Byrd. **208**, 688, 83-F1 (1976)
- On the Extragalactic Interpretation of High-Velocity H I Clouds. David Eichler. **208**, 694, 83-F7 (1976)
- A Possible Manifestation of Unseen Matter. David Eichler. **208**, L5, 77-A5 (1976)
- Spatial Distribution of Neutral Hydrogen in Virgo Cluster Galaxies of Early Type. N. Krumm and E. E. Salpeter. **208**, L7, 77-A7 (1976)
- 3C 286: A Cosmological QSO? A. M. Wolfe, J. J. Broderick, J. J. Condon, and K. J. Johnston. **208**, L47, 82-A2 (1976)
- An Almost Complete Survey of 21 Centimeter Line Radiation for $b \geq 10^\circ$. VI. Energetic Expanding H I Shells. Carl Heiles. **208**, L137, 87-A9 (1976)
- Neutral Hydrogen in the Direction of the Small Magellanic Cloud and the Limits on an Extragalactic Soft X-Ray Flux. D. McCammon, S. S. Meyer, W. T. Sanders, and F. O. Williamson. **209**, 46, 88-D9 (1976)
- H I in Early-Type Galaxies. III. Observations of S0 Galaxies. Bruce Balick, S. M. Faber, and J. S. Gallagher. **209**, 710, 98-E6 (1976)
- Steps toward the Hubble Constant. VII. Distances to NGC 2403, M101, and the Virgo Cluster Using 21 Centimeter Line Widths Compared with Optical Methods: The Global Value of H₀. Allan Sandage and G. A. Tammann. **210**, 7, 103-A10 (1976)
- Radio Sources: Variable**
- Radio Emission from a Source near the Flare Star AD Leonis. R. D. Robinson, O. B. Slee, and A. G. Little. **203**, L91, 3-E6 (1976)
- The Variable Radio Nucleus of M81. Patrick C. Crane, Thomas S. Giuffrida, and John B. Carlson. **203**, L113, 11-D11 (1976)
- Observations of Radio Sources with Variable Flux Density at 365 and 380 MHz. William D. Cotton. **204**, L63, 22-A6 (1976)
- Photoelectric Magnitudes and Polarization Data for Possible BL Lacertae Objects. T. D. Kinman. **205**, 1, 28-A4 (1976)
- A Search for Slowly Varying Radio Continuum Emission from UV Ceti Stars. Steven R. Spangler and Stanley D. Shawhan. **205**, 472, 34-F8 (1976)
- Rapid Increase in the Size of 3C 345. M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart. **206**, L1, 47-A2 (1976)
- Apparent "Superrelativistic" Expansion of the Extragalactic Radio Source 3C 345. J. J. Wittels, W. D. Cotton, C. C. Counselman III, I. I. Shapiro, II. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, T. A. Clark, L. K. Hutton, B. O. Rönning, O. E. H. Rydbeck, and A. E. Niell. **206**, L75, 52-A2 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr. **206**, L107, 52-C12 (1976)
- Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner. **207**, 78, 58-G1 (1976)
- An X-Ray Survey of BL Lacertae Objects. Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidsohn, Keith O. Mason, and Peter W. Sanford. **207**, 359, 63-B6 (1976)
- The Radio-flaring Triple System b Persei. Graham Hill, G. C. L. Aikman, Anne P. Cowley, C. T. Bolton, and J. C.

Radio Sources: Variable—Continued

- Thomas. **208**, 152, 75-E12 (1976)
- A Dynamical Model for the Radio Outbursts of Cygnus X-3. A. W. Woodsworth and V. A. Hughes. **208**, 863, 85-E6 (1976)
- A Model for the Centimeter-Excess Radio Sources. S. E. Okoye. **209**, 362, 93-D6 (1976)
- A Search for Variable 430 MHz Continuum Emission from Red Giant Stars. John D. Fix and Steven R. Spangler. **209**, 503, 94-G6 (1976)
- Observations of Radio Sources with Variable Flux Density at 365 and 380 MHz: Erratum. William D. Cotton. **209**, L53, 92-D10 (1976) (Orig. paper in **204**, L63, 22-A6)
- Detection of X-Rays from Algol (β Persei). H. W. Schnopper, J. P. Delvaille, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Doxsey. **210**, L75, 111-C1 (1976)
- Observations of a Radio Source in the Nucleus of M81 with Dimensions Less than 1300 Astronomical Units. K. I. Kellermann, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, and A. Witzel. **210**, L121, 115-A6 (1976)
- The University of Texas Low-Frequency Variable Radio Source Survey. William D. Cotton. **32**, 467, 30-E1 (1976) (Abstr. in **209**, 648, 96-D9)
- Relativity**
- Determining the Stellar Masses in the Binary System Containing the Pulsar PSR 1913+16: Is the Companion a Helium Main-Sequence Star? David H. Roberts, A. Ronald Masters, and W. David Arnett. **203**, 196, 3-B6 (1976)
- Tidal Friction in the Binary Pulsar System PSR 1913+16. S. A. Balbus and K. Brecher. **203**, 202, 3-B12 (1976)
- The Dynamic Instability of Isothermal Relativistic Star Clusters. K. G. Soffern and E. D. Fackerell. **203**, 477, 7-B5 (1976)
- On the Maximum Gravitational Redshift of White Dwarfs. Stuart L. Shapiro and Saul A. Teukolsky. **203**, 697, 10-D10 (1976)
- Spherical Winds and Accretion in General Relativity. George R. Blumenthal and William G. Mathews. **203**, 714, 10-F1 (1976)
- On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. I. The Numerical Method for Computing Structure and Its Application to Uniformly Rotating Homogeneous Bodies. E. Manning Butterworth and James R. Ipser. **204**, 200, 15-C1 (1976)
- Active Mass in Relativistic Gravity: Theoretical Interpretation of the Kreuzer Experiment. Clifford M. Will. **204**, 224, 15-D11 (1976)
- Dynamics of Primordial Inhomogeneities in Model Universes. E. P. Liang. **204**, 235, 15-E8 (1976)
- A Class of Bianchi Type VI Cosmological Model with Electromagnetic Field. K. A. Dunn and B. O. J. Tupper. **204**, 322, 18-A11 (1976)
- On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. II. The Structure of Uniformly Rotating Pseudopolypotropes. E. Manning Butterworth. **204**, 561, 20-E11 (1976)
- Gravitational-Wave Bursts from the Nuclei of Distant Galaxies and Quasars: Proposal for Detection Using Doppler Tracking of Interplanetary Spacecraft. Kip S. Thorne and Vladimir B. Braginsky. **204**, L1, 17-A2 (1976)
- The Generalized Single-Vector Polarization Model for Pulsars. I. Theory. Dale C. Ferguson. **205**, 247, 30-F4 (1976)
- A Higher Stability Limit for Neutron Stars. Richard L. Bowers, A. M. Gleeson, and R. Daryl Pedigo. **205**, 261, 30-G4 (1976)
- Exact Evolution of Photons in an Anisotropic Cosmology with Scattering. William H. Press. **205**, 311, 33-A4 (1976)
- On a Spherical Star System with a Collapsed Core. E. N. Glass and Bahram Mashhoon. **205**, 570, 35-F9 (1976)
- The Center of Mass in the Post-Newtonian Approximation of General Relativity. G. Contopoulos and N. Spyrou. **205**, 592, 36-A3 (1976)
- A Test of Post-Newtonian Conservation Laws in the Binary System PSR 1913+16. Clifford M. Will. **205**, 861, 40-C4 (1976)
- Relativistic Plasma Turbulence and Its Application to Pulsar Phenomena. Satoshi Hinata. **206**, 282, 46-A4 (1976)
- Theoretical Frameworks for Testing Relativistic Gravity. V. Post-Newtonian Limit of Rosen's Theory. David L. Lee, Carlton M. Caves, Wei-Tou Ni, and Clifford M. Will. **206**, 555, 50-C3 (1976)
- Rapid Increase in the Size of 3C 345. M. H. Cohen, A. T. Moffet, J. D. Romney, R. T. Schilizzi, G. A. Seielstad, K. I. Kellermann, G. H. Purcell, D. B. Shaffer, I. I. K. Pauliny-Toth, E. Preuss, A. Witzel, and R. Rinehart. **206**, L1, 47-A2 (1976)
- Rapidly Rotating, Post-Newtonian Neutron Stars. Stuart L. Shapiro and Alan P. Lightman. **207**, 263, 60-G3 (1976)
- The Structure Equations of a Slowly Rotating, Fully Relativistic Solid Star. H. Quintana. **207**, 279, 61-A5 (1976)
- Relativistic Fluid Disks in Orbit around Kerr Black Holes. Leslie G. Fishbone and Vincent Moncrief. **207**, 962, 70-G10 (1976)
- Negative-Mass Lagging Cores of the Big Bang. Bonnie D. Miller. **208**, 275, 78-A4 (1976)
- Stationary Stars Are Axisymmetric. Lee Lindblom. **208**, 873, 85-F2 (1976)
- Search for Evidence of a Preferred Reference Frame. Richard J. Warburton and John M. Goodkind. **208**, 881, 85-F10 (1976)
- Comments on Gravitational Radiation Damping and Energy Loss in Binary Systems. Jürgen Ehlers, Arnold Rosenblum, Joshua N. Goldberg, and Peter Havas. **208**, L77, 82-C2 (1976)
- Singularities in Universes with Negative Cosmological Constant. Frank J. Tipler. **209**, 12, 88-B2 (1976)
- The Unimportance of Pressure Shifts in the Measurement of Gravitational Redshifts in White Dwarfs. H. L. Shipman and R. G. Mehan. **209**, 205, 90-B6 (1976)
- Post-Galilean Invariance of the Post-Newtonian Eulerian Equations of Hydrodynamics. N. Spyrou. **209**, 243, 90-E5 (1976)
- Some Astrophysical Effects of the Time Variation of All Masses. V. N. Mansfield and S. Malin. **209**, 335, 93-B6 (1976)
- The Generalized Single-Vector Polarization Model for Pulsars. II. Fits to Published Observations. Dale C. Ferguson. **209**, 606, 96-A5 (1976)
- Post-Newtonian Gravitational Radiation from Orbiting Point Masses. Robert V. Wagoner and Clifford M. Will. **210**, 764, 113-E3 (1976)
- Rotation**
- Spectroscopic Evidence for a Higher Rotation Rate of Magnetized Plasma at the Solar Photosphere. Peter Foukal. **203**, L145, 11-F11 (1976)
- On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. I. The Numerical Method for Computing Structure and Its Application to Uniformly Rotating Homogeneous Bodies. E. Manning Butterworth and James R. Ipser. **204**, 200, 15-C1 (1976)
- On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. II. The Structure of Uniformly Rotating Pseudopolypotropes. E. Manning Butterworth. **204**, 561, 20-E11 (1976)
- Effects of a Rotation of the Universe on the Number Counts of Radio Sources: Gödel's Universe. A. J. Fennelly. **207**, 693, 68-A12 (1976)
- The Equilibrium and Stability of Uniformly Rotating, Isothermal Gas Cylinders. Carl J. Hansen, Morris L. Aizenman, and Randy L. Ross. **207**, 736, 68-E1 (1976)
- Steady Accretion of a Rotating Fluid. Patrick Cassen and Donald Pettibone. **208**, 500, 80-D3 (1976)
- Stationary Stars Are Axisymmetric. Lee Lindblom. **208**, 873,

- 85-F2 (1976)
On the Magneto-rotating Polytrope. *M. K. Das and J. N. Tandon*. **209**, 233, 90-D7 (1976)
- Shock Waves**
Magnetospheric Shock Discontinuities in Pulsars. I. Analysis of the Inertial Effects at the Light Cylinder. *Houshang Ardavan*. **203**, 226, 3-D8 (1976)
Spherical Winds and Accretion in General Relativity. *George R. Blumenthal and William G. Mathews*. **203**, 714, 10-F1 (1976)
Shock-Wave Interpretation of Emission Lines in Long-Period Variable Stars. I. The Velocity of the Shock. *L. A. Willson*. **205**, 172, 29-G1 (1976)
Radiative Shock Dynamics. I. The Lyman Continuum. *Richard I. Klein, Robert F. Stein, and Wolfgang Kalkofen*. **205**, 499, 35-A8 (1976)
Compressible Magnetic Field Reconnection: A Slow Wave Model. *Chao-Kung Yang and Bengt U. Ö. Sonnerup*. **206**, 570, 50-D4 (1976)
The Existence of an Ultrarelativistic Plasma beyond the Alfvén Cylinder of a Pulsar. *Houshang Ardavan*. **206**, 872, 54-E1 (1976)
Dynamical Response of the Solar Corona. II. Numerical Simulations near the Sun. *Richard S. Steinolfson and Yoshinari Nakagawa*. **207**, 300, 61-B12 (1976)
Shock-driven Implosion of Interstellar Gas Clouds and Star Formation. *Paul R. Woodward*. **207**, 484, 64-E5 (1976)
The Hydrodynamics of Type II Supernovae. *Roger A. Chevalier*. **207**, 872, 70-A2 (1976)
Soft X-Ray Profile and Spectrum of the Supernova Remnant IC 443. *Roger Malina, Michael Lampton, and Stuart Bowyer*. **207**, 894, 70-B11 (1976)
Dynamical Response of the Interstellar Medium to Explosions at the Galactic Center. *Richard J. DeFouw*. **208**, 52, 74-E2 (1976)
Shock Disturbances in a Thermally Conducting Solar Wind. *Philip Rosenau and Shimshon Frankenthal*. **208**, 633, 81-G2 (1976)
Optical Emission from Shock Waves. I. Abundances in N49. *Michael A. Dopita*. **209**, 395, 93-F13 (1976)
Propagation of Blast Waves. *A. Cavaliere and A. Messina*. **209**, 424, 94-B1 (1976)
Mathematical Theory of Isothermal Blast Waves and the Question of Their Applicability to Supernova Remnants. *Ian Lerche and Vytenis M. Vasiliunas*. **210**, 85, 104-A5 (1976)
On the Acceleration of Shock Waves in the Atmosphere of Cool Mira Variable Giants. *Stephen Slutz*. **210**, 750, 113-D2 (1976)
Synthesis of the Light Elements in Supernovae. *Richard I. Epstein, W. David Arnett, and David N. Schramm*. **31**, 111, 12-F1 (1976) (Abstr. in **205**, 657, 36-E12)
The Structure of Supernova Shock Waves. *Thomas A. Weaver*. **32**, 233, 26-A1 (1976) (Abstr. in **208**, 956, 86-E5)
- Sky Photographs**
Direct Photography of the Gum Nebula. *John C. Brandt, Robert G. Roosen, J. Thompson, and D. J. Ludden*. **208**, 109, 75-B6 (1976)
- Solar System: General**
Spectrophotometry
Four-Point Optical Energy Distributions for Faint BL Lacertae Objects. *S. Tapia, E. R. Craine, and Keith Johnson*. **203**, 291, 5-A10 (1976)
Markarian 376: A Seyfert Galaxy with Strong Fe II Emission. *D. E. Osterbrock*. **203**, 329, 5-D7 (1976)
Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXI. Absolute Energy Distribution of Stars in the Ultraviolet. *R. C. Bless, A. D. Code, and E. T. Fairchild*. **203**, 410, 6-C10 (1976)
Empirical Effective Temperatures and Bolometric Corrections for Early-Type Stars. *A. D. Code, J. Davis, R. C. Bless, and R. Hanbury Brown*. **203**, 417, 6-D4 (1976)
C3 as a Significant Opacity Source in Ba II Stars. *John D. Fix*. **203**, 463, 7-A2 (1976)
A Spectrographic Survey of 21 Planetary Nebulae. *J. B. Kaler, L. H. Aller, and S. J. Czyzak*. **203**, 636, 9-G1 (1976)
Electron Temperature in the Elliptical Galaxy NGC 1052. *A. T. Koski and D. E. Osterbrock*. **203**, L49, 8-B5 (1976)
Spectrophotometry of R Coronae Borealis during the Minimum of 1974. *Robert S. Patterson, John D. Fix, and John S. Neff*. **204**, 838, 25-B7 (1976)
Spectrophotometry of the Flare Star BY Draconis. *John D. Fix and Steven R. Spangler*. **205**, L163, 42-D9 (1976)
Seyfert Galaxies with Strong Fe II Emission. *J. B. Oke and G. A. Shields*. **207**, 713, 68-C4 (1976)
The Minimum State of Dwarf Novae. *Paula Szkody*. **207**, 824, 69-D8 (1976)
2-4 Micron Spectrophotometric Observations of the Galactic Center. *B. T. Soifer, R. W. Russell, and K. M. Merrill*. **207**, L83, 67-B1 (1976)
Spectrophotometry of the X-Ray Binary HZ Herculis. *J. B. Oke*. **209**, 547, 95-C13 (1976)
Population Synthesis of the Nuclei of 10 Nearby Galaxies. *T. B. Williams*. **209**, 716, 98-E12 (1976)
Spectrophotometry of the Algol-Type Binaries U Cephei, U Sagittae, and SX Cassiopeiae. *Craig G. Rhombs and John D. Fix*. **209**, 821, 99-F4 (1976)
A Change in the Optical Spectrum of Zeta Puppis. *Peter S. Conti and Virpi S. Niemela*. **209**, L37, 92-C9 (1976)
The Stellar Content of the Nuclear Regions of Sc Galaxies. *Barry E. Turnrose*. **210**, 33, 103-C12 (1976)
A Study of the Rise to Maximum and the Decline in Dwarf Novae. *Paula Szkody*. **210**, 168, 104-G8 (1976)
Spectrophotometric Studies of Young Stars. I. The Cepheus IV Association. *Martin Cohen and Leonard V. Kuhi*. **210**, 365, 107-G8 (1976)
Absolute Flux Calibration for the Mg II Observations near 2800 Angstroms. *Yoji Kondo, James E. Duval, Jerry L. Modisette, and T. H. Morgan*. **210**, 713, 113-A6 (1976)
Evaluation of Stellar Spectrophotometry. *Michel Breger*. **32**, 1, 22-A2 (1976) (Abstr. in **208**, 271, 76-G9)
Catalog of Spectrophotometric Scans of Stars. *Michel Breger*. **32**, 7, 22-B1 (1976) (Abstr. in **208**, 271, 76-G9)
- Spiral Structure: see Galaxies: Structure**
SS Cygni Stars: see Stars: U Geminorum
Stars: Abundances
Metal-rich Globular Clusters in the Galaxy. III. The "X-Ray" Globular Cluster NGC 6441. *James E. Hesser and F. D. A. Hartwick*. **203**, 97, 2-A1 (1976)
¹²C/¹³C Ratios in Stars Ascending the Giant Branch the First Time. *D. S. P. Dearborn, P. P. Eggleton, and D. N. Schramm*. **203**, 455, 6-G8 (1976)
Metal-rich Globular Clusters in the Galaxy. IV. A Color-Magnitude Diagram for NGC 6304. *James E. Hesser and F. D. A. Hartwick*. **203**, L13, 2-B10 (1976)
Isotopic Abundances of Hg in Mercury Stars Inferred from Hg II λ 3984. *R. E. White, Arthur H. Vaughan, Jr., G. W. Preston, and J. P. Swings*. **204**, 131, 14-D13 (1976)
Effects of Convective Overshoot on Lithium Depletion in Main-Sequence Stars. *Joe M. Straus, J. B. Blake, and David N. Schramm*. **204**, 481, 19-F7 (1976)
The Chemical Composition of Two Subgiant CH Stars. *Christopher Sneden and Howard E. Bond*. **204**, 810, 24-G7 (1976)
The OBN and OBC Stars. *Nolan R. Walborn*. **205**, 419, 34-B8 (1976)
The Application of the Diffusion Hypothesis to Extreme Overabundance Factors in Ap Stars. *Charles R. Cowley and Carol A. Day*. **205**, 440, 34-D3 (1976)
A Lower Limit on the Surface ¹²C/¹³C Ratio in Alpha Orionis. *T. N. Gautier III, Rodger I. Thompson, Uwe Fink, and Harold P. Larson*. **205**, 841, 40-A10 (1976)
A Survey of Peculiar and Metallic-lined A Stars for the Actinides. *Charles R. Cowley, G. C. L. Aikman, and M. R.*

Stars: Abundances—Continued

- Hartoog. **206**, 196, 45-A10 (1976)
- The Secondary of U Sagittae. *Stephen A. Nafilan*. **206**, 785, 54-B5 (1976)
- Constraints on Nucleosynthesis Imposed by Extremely Metal-poor Stars. *Ruth C. Peterson*. **206**, 800, 54-C6 (1976)
- The Long-lived Radioisotopes as Monitors of Stellar, Galactic, and Cosmological Phenomena. *Hubert Reeves and Oliver Johns*. **206**, 958, 56-A7 (1976)
- Metallicity, Pulsation, and the Nature of 32 Virginis. *Donald W. Kurtz, Michel Breger, Steven W. Evans, and William H. Sandmann*. **207**, 181, 60-A4 (1976)
- The Origin and Evolution of RR Lyrae Stars of High Metal Abundance. *Ronald E. Taam, Robert P. Kraft, and Nicholas Suntzeff*. **207**, 201, 60-B10 (1976)
- Enhanced Abundances of Nitrogen and s-Process Elements in Red Giant Stars in Omega Centauri. *R. J. Dickens and R. A. Bell*. **207**, 506, 64-F14 (1976)
- M Dwarfs: Band Strengths in Halo and Disk Populations. *J. R. Mould*. **207**, 535, 65-B4 (1976)
- Cyanogen Strengths of Globular Cluster Post-Main-Sequence Stars. *James E. Hesser, F. D. A. Hartwick, and Robert D. McClure*. **207**, L113, 67-D2 (1976)
- The Ionization Structure of H II Regions: The Effects of Stellar Metal Opacity. *Bruce Balick and Christopher Sneden*. **208**, 336, 78-E8 (1976)
- The Giant Branch of Omega Centauri. I. Abundance Variations Due to Mixing. *M. S. Bessell and John Norris*. **208**, 369, 79-A1 (1976)
- Isotopic Abundances of Magnesium in Arcturus. *J. Tomkin and D. L. Lambert*. **208**, 436, 79-F6 (1976)
- The Indeterminacy of the Age-Dependence of Metallicities of Nearby Disk Stars. *Robert D. McClure and Beatrice M. Tinsley*. **208**, 480, 80-B11 (1976)
- Chemical Evolution in the Solar Neighborhood. II. Statistical Constraints, Finite Stellar Lifetimes, and Inhomogeneities. *Beatrice M. Tinsley*. **208**, 797, 84-G9 (1976)
- CNO Abundances and Hydrodynamic Models of the Nova Outburst. IV. Comparison with Observations. *Warren M. Sparks, Sumner Starfield, and James W. Truran*. **208**, 819, 85-B3 (1976)
- Cassiopeia A, Faint Supernovae, and Heavy-Element Ejection by Supernovae. *Roger A. Chevalier*. **208**, 826, 85-B10 (1976)
- Effects of Heavy-Element Abundances on the Color-Magnitude Diagrams of Young Clusters in the Galaxy and the Magellanic Clouds. *Gretchen L. H. Harris and Robert G. Deupree*. **209**, 402, 93-G6 (1976)
- The Chemical Evolution of the Galactic Halo. *F. D. A. Hartwick*. **209**, 418, 94-A9 (1976)
- The Astrometric Binary μ Cassiopeiae: Photographically Almost Resolved. *Walter A. Feibelman*. **209**, 497, 94-G1 (1976)
- Metal Abundances of RR Lyrae Variables in Selected Galactic Star Fields. I. Baade's Window. *Dennis Butler, Duane Carbon, and Robert P. Kraft*. **210**, 120, 104-D1 (1976)
- An Analysis of the Ultraviolet Spectrum of the Helium-rich Star HR 3089. *John B. Lester*. **210**, 153, 104-F7 (1976)
- The Composition of Kapteyn's Star and the M Subdwarfs. *J. R. Mould*. **210**, 402, 108-C5 (1976)
- Diffusion in Main-Sequence Stars: Radiation Forces, Time Scales, Anomalies. *Georges Michaud, Yves Charland, Sylvie Vaclair, and Gérard Vaclair*. **210**, 447, 108-F10 (1976)
- Beryllium in Main-Sequence Stars. *Ann Merchant Boesgaard*. **210**, 466, 109-A1 (1976)
- Beryllium and Post-Main-Sequence Evolution. *Ann Merchant Boesgaard and Suzan Edwards Chesley*. **210**, 475, 109-A11 (1976)
- On s-Process Abundance Evolution in the Galactic Disk. *H. R. Butler*. **210**, 489, 109-B11 (1976)
- The Giant Branch of ω Centauri. I. Abundance Variations Due to Mixing: Erratum. *M. S. Bessell and John Norris*. **210**, 618, 110-E10 (1976) (Orig. paper in **208**, 369, 79-A1)
- The $^{12}\text{C}/^{13}\text{C}$ Ratio in Stellar Atmospheres. VI. Five Luminous Cool Stars. *K. H. Hinkle, D. L. Lambert, and R. L. Snell*. **210**, 684, 112-F4 (1976)
- The $^{12}\text{C}/^{13}\text{C}$ Ratio in Stellar Atmospheres. VII. 38 Giants and Supergiants. *J. Tomkin, R. E. Luck, and D. L. Lambert*. **210**, 694, 112-G1 (1976)
- Overabundances of Sodium and the Heavy Isotopes of Magnesium in Strong-lined Elliptical Galaxies. *Ruth C. Peterson*. **210**, L123, 115-A8 (1976)
- An Explanation of the Super-Metal-rich Phenomenon in Field K Giants as an Effect of a Difference in Surface Temperature. *Ruth Peterson*. **30**, 61, 1-G1 (1976) (Abstr. in **202**, 844, 99-G14)
- The Chemical Composition of Gamma Pegasi. *Geraldine J. Peters*. **30**, 551, 10-A1 (1976) (Abstr. in **205**, 310, 31-C12)
- Identification of Novel Molecules in the Spectrum of 19 Piscium. *Robert S. Wojslaw and Benjamin F. Peery, Jr.* **31**, 75, 12-B1 (1976) (Abstr. in **205**, 656, 36-E11)
- Diffusion in Stars: Ionization and Abundance Effects. *Thierry Montmerle and Georges Michaud*. **31**, 489, 19-D1 (1976) (Abstr. in **206**, 966, 56-B1)
- Yttrium, Barium, and the Lanthanides in Ap and Am Stars. *Charles R. Cowley*. **32**, 631, 33-E1 (1976) (Abstr. in **210**, 621, 110-E14)
- Metallicity and Pulsation: An Analysis of the Delta Delphini Stars. *Donald W. Kurtz*. **32**, 651, 33-G1 (1976) (Abstr. in **210**, 622, 110-F1)
- Stars: Accretion**
- The Effect of Radiation Pressure on Accretion Disks around Black Holes. *Laura Maraschi, Cesare Reina, and Aldo Treves*. **206**, 295, 46-B3 (1976)
- Stars: Atmospheres**
- Empirical Effective Temperatures and Bolometric Corrections for Early-Type Stars. *A. D. Code, J. Davis, R. C. Bless, and R. Hanbury Brown*. **203**, 417, 6-D4 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. II. A Saturated Line in 32 Aquarii and in Sirius. *Myron A. Smith*. **203**, 603, 9-D9 (1976)
- Transfer of Line Radiation in Differentially Expanding Atmospheres. IV. The Two-Level Atom in Plane-parallel Geometry Solved by the Feautrier Method: Erratum. *P. D. Noerdlinger and G. B. Rybicki*. **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 651, 71-D5)
- A Statistical Method for Treating Molecular Line Opacities. *C. Sneden, H. R. Johnson, and B. M. Krupp*. **204**, 281, 16-B5 (1976)
- The Chemical Composition of Two Subgiant CH Stars. *Christopher Sneden and Howard E. Bond*. **204**, 810, 24-G7 (1976)
- Asymmetries in the Absorption Lines of Manganese Stars. *Myron A. Smith and Sidney B. Parsons*. **205**, 430, 34-C7 (1976)
- The Application of the Diffusion Hypothesis to Extreme Overabundance Factors in Ap Stars. *Charles R. Cowley and Carol A. Day*. **205**, 440, 34-D3 (1976)
- Radiative Shock Dynamics. I. The Lyman Continuum. *Richard I. Klein, Robert F. Stein, and Wolfgang Kalkofen*. **205**, 499, 35-A8 (1976)
- A Tensor Formulation of the Equation of Transfer for Spherically Symmetric Flows. *Bernhard M. Haisch*. **205**, 520, 35-C1 (1976)
- Treatment of Atomic and Molecular Line Blanketing by Opacity Sampling. *Hollis R. Johnson and Brian M. Krupp*. **206**, 201, 45-B1 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. III. Effect of Aberration and Advection Terms. *Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer*. **206**, 515, 49-G5 (1976)
- Convective Instability in a Compressible Atmosphere. II. D.

- O. Gough, D. R. Moore, E. A. Spiegel, and N. O. Weiss.* **206**, 536, 50-A12 (1976)
- Luminosity Effects in the Ultraviolet Spectrum of B5-B6 Stars. *Anne B. Underhill and Ernest Silversmith.* **206**, L56, 44-E11 (1976)
- On the White Dwarf HZ 43 as an Extreme-Ultraviolet Source. *Richard H. Durisen, M. P. Savedoff, and H. M. Van Horn.* **206**, L149, 56-E4 (1976)
- M Dwarfs: Band Strengths in Halo and Disk Populations. *J. R. Mould.* **207**, 535, 65-B4 (1976)
- A Nonlocal Mixing-Length Theory of Convection for Use in Numerical Calculations. *Roger K. Ulrich.* **207**, 564, 65-D6 (1976)
- Theoretical Wavelength Dependence of Polarization in Early-Type Stars. *Bernhard M. Haisch and Joseph P. Cassinelli.* **208**, 253, 76-F3 (1976)
- Sodium Line Formation in Arcturus. II. The Use of Empirical and Opacity Sampling Models and the Nature of Partial Redistribution Effects. *Walter L. Kelch and Robert W. Milkey.* **208**, 428, 79-E12 (1976)
- Digital Restoration of an Image of Betelgeuse. *M. J. McDonnell and R. H. T. Bates.* **208**, 443, 79-F13 (1976)
- A Model for P Cygni Based on the He I Spectrum. *William R. Oegerle and David Van Blerkom.* **208**, 453, 79-G8 (1976)
- The Unimportance of Pressure Shifts in the Measurement of Gravitational Redshifts in White Dwarfs. *H. L. Shipman and R. G. Mehan.* **209**, 205, 90-B6 (1976)
- An Analysis of the Ultraviolet Spectrum of the Helium-rich Star HR 3089. *John B. Lester.* **210**, 153, 104-F7 (1976)
- Stellar Model Chromospheres. V. Alpha Centauri A (G2 V) and Alpha Centauri B (K1 V). *T. R. Ayres, J. L. Linsky, A. W. Rodgers, and R. L. Kurucz.* **210**, 199, 105-B11 (1976)
- The Composition of Kapteyn's Star and the M Subdwarfs. *J. R. Mould.* **210**, 402, 108-C5 (1976)
- Beryllium in Main-Sequence Stars. *Ann Merchant Boesgaard.* **210**, 466, 109-A1 (1976)
- Degenerate Stars with Helium Atmospheres. *Jesse L. Greenstein.* **210**, 524, 109-E5 (1976)
- The Temperature and Radius of the White Dwarf Stein 2051B. *James Liebert.* **210**, 715, 113-A8 (1976)
- The Exciting Stars of Low-Excitation Planetary and Diffuse Nebulae. *James B. Kaler.* **210**, 843, 114-D1 (1976)
- An Explanation of the Super-Metal-rich Phenomenon in Field K Giants as an Effect of a Difference in Surface Temperature. *Ruth Peterson.* **30**, 61, 1-G1 (1976) (Abstr. in **202**, 844, 99-G14)
- Diffusion in Stars: Ionization and Abundance Effects. *Thierry Montmerle and Georges Michaud.* **31**, 489, 19-D1 (1976) (Abstr. in **206**, 966, 56-B1)
- Stars: Ba II**
- C₂ as a Significant Opacity Source in Ba II Stars. *John D. Fix.* **203**, 463, 7-A2 (1976)
- Enhanced Abundances of Nitrogen and s-Process Elements in Red Giant Stars in Omega Centauri. *R. J. Dickens and R. A. Bell.* **207**, 506, 64-F14 (1976)
- Stars: Be**
- Evidence for Mass Loss at Moderate to High Velocity in Be Stars. *Theodore P. Snow, Jr. and J. M. Marlborough.* **203**, L87, 8-E2 (1976)
- A Study of Be Stars in Clusters. *R. Schild and W. Romanishin.* **204**, 493, 19-G6 (1976)
- Intrinsic Linear Polarization of Be Stars as a Function of $V \sin i$. *R. Poekert and J. M. Marlborough.* **206**, 182, 44-G10 (1976)
- The Photometric and Spectrographic Histories of HD 245770 \pm A0535+26: The Transient X-Ray Source. *Mark Stier and William Liller.* **206**, 257, 45-F3 (1976)
- Polarization from a Dust Ring surrounding the Peculiar Be Star HD 45677. *George V. Coyne S.J. and Frederick J. Vrba.* **207**, 790, 69-B1 (1976)
- Theoretical Wavelength Dependence of Polarization in Early-Type Stars. *Bernhard M. Haisch and Joseph P. Cassinelli.* **208**, 253, 76-F3 (1976)
- Observations of Southern Emission-Line Stars. *Karl G. Henize.* **30**, 491, 9-B1 (1976) (Abstr. in **205**, 310, 31-C12)
- Stars: β Cephei**
- Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIV. The Beta Cephei Stars Delta Ceti and Gamma Pegasi. *Janet Rountree Lesh.* **208**, 135, 75-D9 (1976)
- Theoretical Models of Beta Cephei Stars Constructed with New Radiative Opacities. *Richard Stothers.* **210**, 434, 108-E9 (1976)
- Stars: Binaries**
- The 4.8 Hour Variation of Cygnus X-3 at High X-Ray Energies. *W. Pietsch, E. Kendziorra, R. Staubert, and J. Trüper.* **203**, 167, 8-C6 (1976)
- Effects of Tidal Distortion on Binary-Star Velocity Curves and Ellipsoidal Variation. *Robert E. Wilson and Sabatino Sofia.* **203**, 182, 3-A2 (1976)
- Determining the Stellar Masses in the Binary System Containing the Pulsar PSR 1913+16: Is the Companion a Helium Main-Sequence Star? *David H. Roberts, A. Ronald Masters, and W. David Arnett.* **203**, 196, 3-B6 (1976)
- Tidal Friction in the Binary Pulsar System PSR 1913+16. *S. A. Balbus and K. Brecher.* **203**, 202, 3-B12 (1976)
- Skylab Ultraviolet Stellar Spectra: Cool Stars with Hot Secondaries. *S. B. Parsons, J. D. Wray, Y. Kondo, K. G. Henize, and G. F. Benedict.* **203**, 435, 6-E9 (1976)
- Synchronization in Binaries and Age. *Hugo Levato.* **203**, 680, 10-C7 (1976)
- Interaction of Neutron Stars with Black Holes. *R. M. Misra.* **203**, 704, 10-E4 (1976)
- The X-Ray Behavior of 3U 1700-37. *Keith O. Mason, Graziella Branduardi, and Peter Sanford.* **203**, L29, 4-E5 (1976)
- Observational Constraints on Pulsar Binary Motion. *D. Q. Lamb and F. K. Lamb.* **204**, 168, 14-G9 (1976)
- A Binary Hypothesis for the Subdwarf B Stars. *John G. Mengel, John Norris, and Peter G. Gross.* **204**, 488, 19-G1 (1976)
- The Binary Frequency of IC 4665. *David Crampton, Graham Hill, and W. A. Fisher.* **204**, 502, 20-A1 (1976)
- The Long-Term Intensity Behavior of Centaurus X-3. *E. J. Schreier, K. Swartz, R. Giacconi, G. Fabbiano, and J. Morin.* **204**, 539, 20-D2 (1976)
- Black Holes in X-Ray Binaries: Marginal Existence and Rotation Reversals of Accretion Disks. *Stuart L. Shapiro and Alan P. Lightman.* **204**, 555, 20-E5 (1976)
- Spectroscopic Studies of O-Type Binaries. I. BD +40°4220: An Enigma Ripe for Resolution. *Bruce Bohannan and Peter S. Conti.* **204**, 797, 24-F8 (1976)
- Orbital Evolution of a Singly Condensed, Close Binary by Mass Loss from the Primary and by Accretion Drag on the Condensed Member. *M. E. Alexander, W. Y. Chau, and R. N. Henriksen.* **204**, 879, 25-E6 (1976)
- Slow Mass Transfer in Semidetached Binaries. *J. P. Pratt and P. A. Strittmatter.* **204**, L29, 17-C2 (1976)
- The Linear Polarization of BY Draconis. *Robert H. Koch and Raymond J. Pfeiffer.* **204**, L47, 17-D6 (1976)
- LP 380-5/6: A Binary System Containing a Late-Type Degenerate Star. *Conard C. Dahn and Robert S. Harrington.* **204**, L91, 22-C5 (1976)
- An Improved Spectroscopic Orbit for the White Dwarf Eclipsing Binary BD +16°516. *Arthur Young.* **205**, 182, 29-G11 (1976)
- The Spectroscopic Binary Orbit in the Triple Star ADS 14893. *Frederick R. West.* **205**, 194, 30-A13 (1976)
- W Ursae Majoris Systems with Marginal Contact. *L. B. Lucy.* **205**, 208, 30-C5 (1976)
- A Cyclic Thermal Instability in Contact Binary Stars. *Brian P. Flannery.* **205**, 217, 30-D1 (1976)
- Hydrogen and Helium Lines in Theoretical Models of Scorpius

Stars: Binaries—Continued

- X-1 and Cygnus X-2. *Mordehai Milgrom and J. I. Katz.* **205**, 545, 35-D12 (1976)
- Tidal Circularization of the Binary X-Ray Sources Hercules X-1 and Centaurus X-3. *Myron Lecar, J. Craig Wheeler, and Christopher F. McKee.* **205**, 556, 35-E9 (1976)
- The Binary Pulsar: Preexplosion Evolution. *J. Craig Wheeler.* **205**, 578, 35-G3 (1976)
- Arrival-Time Analysis for a Pulsar in a Binary System. *Roger Blandford and Saul A. Teukolsky.* **205**, 580, 35-G5 (1976)
- Three-Color Photometry of HDE 226868: The Optical Counterpart of Cygnus X-1. *Daniel F. Lester, Ira G. Nolt, Shirley A. Stearns, Peter Straton, and James V. Radostitz.* **205**, 855, 40-B12 (1976)
- A Test of Post-Newtonian Conservation Laws in the Binary System PSR 1913+16. *Clifford M. Will.* **205**, 861, 40-C4 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. I. Search for Binary Periodicity. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski.* **205**, L27, 32-B12 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. II. Evidence for Flare-dominated Intensity Variations. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski.* **205**, L79, 37-B9 (1976)
- Evidence for an 11.2 Day Periodicity from Cygnus X-2. *S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski.* **205**, L143, 42-C6 (1976)
- Precession of the Nodes in Some Triple Stellar Systems. *Tsevi Mazeh and Jacob Shaham.* **205**, L147, 42-C9 (1976)
- A Binary Model for the Infrared Source HD 101584. *Roberta M. Humphreys.* **206**, 122, 44-C1 (1976)
- HD 47129: The Most Massive Binary. *J. B. Hutchings and A. P. Cowley.* **206**, 490, 49-E7 (1976)
- An Analysis of the Variable Radial Velocity of Alpha Cygni. *L. B. Lucy.* **206**, 499, 49-F3 (1976)
- The Accreting Component of Mass-Exchange Binaries. *Roger K. Ulrich and Harry L. Burger.* **206**, 509, 49-F13 (1976)
- Discovery of X-Ray Pulsations in SMC X-1. *R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman.* **206**, L25, 47-B13 (1976)
- Radial-Velocity Variations of Scorpius X-1 Emission Lines. *D. J. Bord, R. J. Messina, D. E. Mook, and W. A. Hiltner.* **206**, L49, 47-D10 (1976)
- Further Observations of the Binary Pulsar PSR 1913+16. *J. H. Taylor, R. A. Hulse, L. A. Fowler, G. E. Gullahorn, and J. M. Rankin.* **206**, L53, 47-E1 (1976)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. *J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matilsky, W. Mayer, and F. Primiini.* **206**, L99, 52-C4 (1976)
- The 3U 0900-40 Binary System: Orbital Elements and Masses. *S. Rappaport, P. C. Joss, and J. E. McClintock.* **206**, L103, 52-C8 (1976)
- An Unusually Strong Radio Outburst in Algol: VLBI Observations. *T. A. Clark, L. K. Hutton, C. Ma, I. I. Shapiro, J. J. Wittels, D. S. Robertson, H. F. Hinteregger, C. A. Knight, A. E. Rogers, A. R. Whitney, A. E. Niell, G. M. Resch, and W. J. Webster, Jr.* **206**, L107, 52-C12 (1976)
- Upper Limits for the Visible Counterpart of the Hulse-Taylor Binary Pulsar. *J. Kristian, K. D. Clardy, and J. A. Westphal.* **206**, L143, 56-D12 (1976)
- A Model for the Radio Outbursts of Cygnus X-3. *E. R. Seaquist.* **207**, 88, 59-A1 (1976)
- Metallicism, Pulsation, and the Nature of 32 Virginis. *Donald W. Kurtz, Michel Breger, Steven W. Evans, and William H. Sandmann.* **207**, 181, 60-A4 (1976)
- Spectroscopic Studies of O-Type Binaries. II. HD 93205, O3 V, in the Carina Nebula. *Peter S. Conti and Nolan R. Walborn.* **207**, 502, 64-F10 (1976)
- The Binary Pulsar: Physical Processes, Possible Companions, and Evolutionary Histories. *Larry L. Smarr and Roger Blandford.* **207**, 574, 65-E2 (1976)
- The Infrared Emission of Upsilon Sagittarii, 89 Herculis, and R Coronae Borealis. *Richard Treffers, Neville J. Woolf, Uwe Fink, and Harold P. Larson.* **207**, 680, 66-E10 (1976)
- Turbulence in Tidally Distorted Stars. *Fredrick Hampton Seguin.* **207**, 848, 69-F4 (1976)
- On the Origin of Optical Emission Lines in Spectra of X-Ray Binaries. *Mordehai Milgrom.* **207**, 902, 70-C5 (1976)
- Spectroscopic Analysis of Scorpius X-1. *David Crampton, Anne P. Cowley, J. B. Hutchings, and C. Kaat.* **207**, 907, 70-C10 (1976)
- Accretion onto Magnetized Neutron Stars: Structure and Interchange Instability of a Model Magnetosphere. *Jonathan Arons and Susan M. Lea.* **207**, 914, 70-D3 (1976)
- Soft X-Rays from Hercules X-1 During the "Off" State. *G. Fritz, S. Naranan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder.* **207**, L29, 62-C11 (1976)
- Gas Dynamics of Semidetached Binaries. II. The Vertical Structure of the Stream. *Stephen H. Lubow and Frank H. Shu.* **207**, L53, 62-E6 (1976)
- Some Further Degenerate Stars. IX. *Jesse L. Greenstein.* **207**, L119, 67-D8 (1976)
- AO Cassiopeiae: Phase-locked Polarization and the Geometry of the Gas Stream. *Richard J. Rudy and James C. Kemp.* **207**, L125, 67-D13 (1976)
- The Radio-flaring Triple System b Persei. *Graham Hill, G. C. L. Aikman, Anne P. Cowley, C. T. Bolton, and J. C. Thomas.* **208**, 152, 75-E12 (1976)
- The Heating Effect in Scorpius X-1. *Mordehai Milgrom.* **208**, 191, 76-A10 (1976)
- Studies of Optical Pulsations from HZ Herculis/Hercules X-1: A Determination of the Mass of the Neutron Star. *John Middleton and Jerry Nelson.* **208**, 567, 81-B2 (1976)
- A Single-Star Interpretation of Nova Cygni 1975. *S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. M. Van Horn.* **208**, L23, 77-B10 (1976)
- Optical Study of the X-Ray Binary Hercules X-1. *Richard H. St. John.* **208**, L31, 77-C3 (1976)
- Evidence for a 16.6 Day Period from Circinus X-1. *L. J. Kaluzienski, S. S. Holt, E. A. Boldt, and P. J. Serlemitsos.* **208**, L71, 82-B9 (1976)
- Comments on Gravitational Radiation Damping and Energy Loss in Binary Systems. *Jürgen Ehlers, Arnold Rosenblum, Joshua N. Goldberg, and Peter Havas.* **208**, L77, 82-C2 (1976)
- Evidence for the Binary Nature of A0535+26. *S. Rappaport, P. C. Joss, H. Bradt, G. W. Clark, and J. G. Jernigan.* **208**, L119, 86-G3 (1976)
- HR 2727: A Double-Line Binary Containing a Magnetic Ap Star. *Walter K. Bonsack.* **209**, 160, 89-F2 (1976)
- On the Structure of Contact Binaries. I. The Contact Discontinuity. *Frank H. Shu, Stephen H. Lubow, and Lawrence Anderson.* **209**, 536, 95-C2 (1976)
- Optical Clues to the Nature of Hercules X-1/HZ Herculis. *D. Gerend and P. E. Boynton.* **209**, 562, 95-E1 (1976)
- A New Interpretation of Luminous Blue Stars. *Richard Stothers.* **209**, 800, 99-D11 (1976)
- The Evolution of Low-Mass Close Binary Systems. I. The Evolutionary Fate of Contact Binaries. *Ronald F. Webbink.* **209**, 829, 99-F12 (1976)
- The Pulsational Properties of High-Luminosity Degenerate Stars with Helium Burning near the Surface. *Edward M. Sion and Samuel C. Vila.* **209**, 850, 100-A5 (1976)
- Supernovae in Binary Systems: Erratum. *J. C. Wheeler, M. Lecar, and C. F. McKee.* **209**, 961, 101-B12 (1976) (Orig. paper in **200**, 145, 64-E1)
- A Study of the Rise to Maximum and the Decline in Dwarf Novae. *Paula Szkody.* **210**, 168, 104-G8 (1976)
- A Possible Mechanism for Mass Transfer in X-Ray Binary Systems with OB Supergiant Companions. *Marvin L. Alme*

- and James R. Wilson. **210**, 233, 105-E4 (1976)
- On the Multiplicity of Solar-Type Stars. David Branch. **210**, 392, 108-B7 (1976)
- T Aurigae, EX Hydrae, U Geminorum: Additional Times of Minima. G. S. Mumford. **210**, 416, 108-D5 (1976)
- Supernovae in Binaries, and the Possible Collapsed Nature of the Companion of HD 108. Jacob D. Bekenstein. **210**, 544, 109-F12 (1976)
- The Tidal Disruption of Neutron Stars by Black Holes in Close Binaries. James M. Lattimer and David N. Schramm. **210**, 549, 109-G3 (1976)
- Emission-Line Stars in the Large Magellanic Cloud: Spectroscopy and Infrared Photometry. D. A. Allen and I. S. Glass. **210**, 666, 112-D11 (1976)
- Post-Newtonian Gravitational Radiation from Orbiting Point Masses. Robert V. Wagoner and Clifford M. Will. **210**, 764, 113-E3 (1976)
- The Detection of Radio Emission from the RS CVn Binary HR 1099. Frazer N. Owen, T. W. Jones, and D. M. Gibson. **210**, L27, 106-C10 (1976)
- Detection of X-Rays from Algol (β Persei). H. W. Schnopper, J. P. Delvaille, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Doxsey. **210**, L75, 111-C1 (1976)
- An Intense Extreme-Ultraviolet Source in Cetus. Bruce Margon, Michael Lampton, Stuart Bowyer, Robert Stern, and Francesco Paresce. **210**, L79, 111-C6 (1976)
- Orbital Precession in Hercules X-1. J. E. Deeter and P. E. Boynton. **210**, L133, 115-B3 (1976)
- Multiplicity among Solar-Type Stars. Helmut A. Abt and Saul G. Levy. **30**, 273, 5-E1 (1976) (Abstr. in **204**, 313, 16-D10)
- The Evolution of Low-Mass Close Binary Systems. II. $1.50 M_{\odot} + 0.75 M_{\odot}$: Evolution into Contact. Ronald F. Webbink. **32**, 583, 33-A2 (1976) (Abstr. in **210**, 623, 110-F2)
- Stars: Black Holes** see **Black Holes**
- Stars: Carbon**
- Carbon Star Photometry: CO and 3.2 Micron Bands. Theodore D. Faÿ, Jr. and Stephen T. Ridgway. **203**, 600, 9-D6 (1976)
- Observations of Near-Infrared C₂ Bands in the Spectra of Carbon Stars: Erratum. Daya P. Gilra. **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 145, 51-E1)
- Carbon Stars in the Large Magellanic Cloud. Dennis R. Crabtree, Harvey B. Richer, and B. E. Westerlund. **203**, L81, 8-D10 (1976)
- A Statistical Method for Treating Molecular Line Opacities. C. Sneden, H. R. Johnson, and B. M. Krupp. **204**, 281, 16-B5 (1976)
- The C₄ Molecule. W. R. M. Graham, K. T. Dismuke, and W. Weltner, Jr. **204**, 301, 16-C12 (1976)
- The Chemical Composition of Two Subgiant CH Stars. Christopher Sneden and Howard E. Bond. **204**, 810, 24-G7 (1976)
- GH7-21: A Possible Degenerate Star with Narrow Hydrogen Lines and Strong Carbon Features. James Liebert. **204**, L93, 22-C7 (1976)
- Mass Loss by Cool Carbon Stars. L. B. Lucy. **205**, 482, 34-G4 (1976)
- CRL 2688: A Post-Carbon-Star Object and Probable Planetary Nebula Progenitor. B. Zuckerman, Daya P. Gilra, B. E. Turner, M. Morris, and Patrick Palmer. **205**, L15, 32-B2 (1976)
- CRL 2688 and CRL 618: Proto-Planetary Nebulae? K. Y. Lo and Kenneth P. Bechis. **205**, L21, 32-B7 (1976)
- A Composite Hertzsprung-Russell Diagram for the Peculiar Red Giants. John M. Scalzo. **206**, 474, 49-D5 (1976)
- Stars: Catalogs**
- An Observational Study of the AFCRL Infrared Sky Survey. I. Limited Ground-based Survey and Results from Preliminary Catalog. F. J. Low, R. F. Kurtz, F. J. Vrba, and G. H. Rieke. **206**, L153, 56-E8 (1976)
- An Observational Study of the AFCRL Infrared Sky Survey. II. Present Results of a New Program to Study the Final Catalog. M. J. Lebofsky, S. G. Kleinmann, G. H. Rieke, and F. J. Low. **206**, L157, 56-E11 (1976)
- Stars: Cepheids**
- (R-I) Colors of Cepheids and Yellow Supergiants in Open Clusters. Edward G. Schmidt. **203**, 466, 7-A5 (1976)
- The Evolutionary Status of Population II Cepheids. Robert A. Gingold. **204**, 116, 14-C10 (1976)
- Evolutionary Problems of Cepheids and Other Giants Investigated with New Radiative Opacities. T. Richard Carson and Richard Stothers. **204**, 461, 19-E1 (1976)
- Evidence Favoring Nonevolutionary Cepheid Masses. Norman Simon and Edward G. Schmidt. **205**, 162, 29-F5 (1976)
- On the Evolution of Massive Stars through the Core Carbon-burning Phase. Susan A. Lamb, Icko Iben, Jr., and W. Michael Howard. **207**, 209, 60-C4 (1976)
- The 10.8 Day Cepheid TW Normae and the Cluster Lyngå Number 6. Sidney van den Bergh and Gretchen L. H. Harris. **208**, 767, 84-D12 (1976)
- The Cepheid SV Crucis and the Cluster Ruprecht 97. Sidney van den Bergh, Elizabeth Herbst, Gretchen L. H. Harris, and William Herbst. **208**, 770, 84-E7 (1976)
- The Cepheid CS Velorum and the Cluster Ruprecht 79. Gretchen L. H. Harris and Sidney van den Bergh. **209**, 130, 89-C12 (1976)
- Wesselink Radii for Classical Cepheids. Nancy Remeig Evans. **209**, 135, 89-D5 (1976)
- On the Period and Radius of Zeta Geminorum. C. D. Scarfe. **209**, 141, 89-D11 (1976)
- The Masses of the Anomalous Cepheids in the Draco System. Robert Zinn and Leonard Searle. **209**, 734, 98-G2 (1976)
- About the Proper Choice of the Characteristic Length in the Convection Theory. Erika Böhm-Vitense and George Driver Nelson. **210**, 741, 113-C7 (1976)
- Light and Radial Velocity Observations of Classical Cepheids. Nancy Remeig Evans. **32**, 399, 29-D1 (1976) (Abstr. in **209**, 648, 96-D9)
- Stars: Chromospheres**
- Resonance-Line Transfer with Partial Redistribution. VIII. Solution in the Comoving Frame for Moving Atmospheres. Dimitri Mihalas, R. A. Shine, P. B. Kunasz, and D. G. Hummer. **205**, 492, 35-A1 (1976)
- Spectroscopic Survey of the Far Ultraviolet (1160-1700 Å) Emissions of Capella. R. C. Vitz, H. Weiser, H. W. Moos, A. Weinstein, and E. S. Warden. **205**, L35, 32-C6 (1976)
- Properties of the Chromosphere-Corona Transition Region in Capella. Bernhard M. Haisch and Jeffrey L. Linsky. **205**, L39, 32-C10 (1976)
- The Fundamental Bands of CO as Chromospheric Indicators in Late-Type Giant Stars. J. N. Heasley and R. W. Milkey. **205**, L43, 32-D1 (1976)
- Possible Mg II Emission in B Stars Observed from Copernicus. Yoji Kondo, Jerry L. Modisette, Reginald J. Dufour, and Ray S. Whaley. **206**, 163, 44-F4 (1976)
- Further Observations of the λ 10830 Helium Line in Stars and their Significance as a Measure of Stellar Activity. H. Zirin. **208**, 414, 79-D7 (1976)
- Stellar Model Chromospheres. V. Alpha Centauri A (G2 V) and Alpha Centauri B (K1 V). T. R. Ayres, J. L. Linsky, A. W. Rodgers, and R. L. Kurucz. **210**, 199, 105-B11 (1976)
- Absolute Flux Calibration for the Mg II Observations near 2800 Angstroms. Yoji Kondo, James E. Duval, Jerry L. Modisette, and T. H. Morgan. **210**, 713, 113-A6 (1976)
- About the Proper Choice of the Characteristic Length in the Convection Theory. Erika Böhm-Vitense and George Driver Nelson. **210**, 741, 113-C7 (1976)
- Stars: Circumstellar Shells**
- Radiative Transfer in Spherical Circumstellar Dust Envelopes. IV. The Infrared Emissivity Profile and Composition of the Dust in NGC 7027. John P. Apruzese. **203**, 177, 2-G11 (1976)
- Accelerated Gas Outflow in Early-Type Emission-Line Stars.

Stars: Circumstellar Shells—Continued

- K. A. Marsh. **203**, 551, 8-A1 (1976)
- Interpretation of the Spectral and Photometric Variations of R Coronae Borealis. *Lee Hartmann and John P. Apruzese*. **203**, 610, 9-E2 (1976)
- Mass Loss in Globular-Cluster Red Giants. *Judith G. Cohen*. **203**, L127, 11-E10 (1976)
- Forbidden and Permitted Emission Lines of Singly Ionized Iron as a Diagnostic in the Investigation of Stellar Emission-Line Spectra. *R. Viotti*. **204**, 293, 16-C4 (1976)
- Radio Continuum Observations of NML Cygni. *P. C. Gregory and E. R. Seaquist*. **204**, 626, 21-C5 (1976)
- The Geometry of VY Canis Majoris Derived from SiO Maser Lines. *David Van Blerkom and Lawrence Auer*. **204**, 775, 24-D13 (1976)
- Copernicus Observations of Betelgeuse and Antares. *A. P. Bernat and D. L. Lambert*. **204**, 830, 25-A13 (1976)
- Spectrophotometry of R Coronae Borealis during the Minimum of 1974. *Robert S. Patterson, John D. Fix, and John S. Neff*. **204**, 838, 25-B7 (1976)
- Radiative Transport in Circumstellar Dust Shells. *Ronald E. Taam and Richard D. Schwartz*. **204**, 842, 25-B11 (1976)
- The Complex Outer Shell of Eta Carinae. *Nolan R. Walborn*. **204**, L17, 17-B2 (1976)
- Mass Loss in Red Giants and Supergiants. *Fred Sanner*. **204**, L41, 17-D1 (1976)
- OH-IR Stars. I. Physical Properties of Circumstellar Envelopes. *Peter Goldreich and Nick Scoville*. **205**, 144, 29-E1 (1976)
- OH-IR Stars. II. A Model for the 1612 MHz Masers. *Moshe Elitzur, Peter Goldreich, and Nick Scoville*. **205**, 384, 33-F13 (1976)
- Ultraviolet Fe II Emission in Late-Type Stars. *Ann Merchant Boesgaard and Hans Boesgaard*. **205**, 448, 34-D13 (1976)
- Mass Loss by Cool Carbon Stars. *L. B. Lucy*. **205**, 482, 34-G4 (1976)
- CRL 2688 and CRL 618: Proto-Planetary Nebulae? *K. Y. Lo and Kenneth P. Bechis*. **205**, L21, 32-B7 (1976)
- A Model for the Radio Outbursts of Cygnus X-3. *E. R. Seaquist*. **207**, 88, 59-A1 (1976)
- The Infrared Emission of Upsilon Sagittarii, 89 Herculis, and R Coronae Borealis. *Richard Treffers, Neville J. Woolf, Uwe Fink, and Harold P. Larson*. **207**, 680, 66-E10 (1976)
- On the Stellar Velocity of Long-Period Variables and OH Maser Stars. *Mark J. Reid*. **207**, 784, 69-A8 (1976)
- Polarization from a Dust Ring Surrounding the Peculiar Be Star HD 45677. *George V. Coyne S.J. and Frederick J. Vrba*. **207**, 790, 69-B1 (1976)
- Radiative Transfer in Spherical Circumstellar Dust Envelopes. V. Theoretical Circumstellar Graphite and Silicate Emission Spectra. *John P. Apruzese*. **207**, 799, 69-B11 (1976)
- A Model for P Cygni Based on the He I Spectrum. *William R. Oegerle and David Van Blerkom*. **208**, 453, 79-G8 (1976)
- H₂ in Expanding Circumstellar Shells. *David Hollenbach, Shih-I Chu, and Richard McCray*. **208**, 458, 79-G13 (1976)
- The Stellar Velocity of Long-Period Variables. *Mark J. Reid and Dale F. Dickinson*. **209**, 505, 94-G8 (1976)
- Model Dust Envelopes around Late-Type Stars. *T. W. Jones and K. M. Merrill*. **209**, 509, 95-A1 (1976)
- Photometric Variations of T Tauri Stars. *Pui Kuan*. **210**, 129, 104-D11 (1976)
- Infrared Light Variations of Wolf-Rayet Stars. *J. A. Hackwell, R. D. Gehrz, J. R. Smith, and D. W. Strecker*. **210**, 137, 104-E5 (1976)
- Circumstellar Matter in the Binary V Puppis. *Donald G. York, Brian Flannery, and John Bahcall*. **210**, 143, 104-E11 (1976)
- The Dynamical Interaction of a Newly Formed Protostar with Infalling Matter: The Origin of Interstellar Grains. *John Robert Burke and Joseph Silk*. **210**, 341, 107-E12 (1976)
- K I 7699 Å Emission from the Betelgeuse Shell. *A. P. Bernat and D. L. Lambert*. **210**, 395, 108-B10 (1976)
- Emission-Line Stars in the Large Magellanic Cloud: Spectroscopy and Infrared Photometry. *D. A. Allen and I. S. Glass*. **210**, 666, 112-D11 (1976)
- Radiative Transfer in Circumstellar Dust Shells. *C. A. Harvel*. **210**, 862, 114-E7 (1976)
- The Nature of the Objects of Joy: A Study of the T Tauri Phenomenon. *A. E. Rydgren, S. E. Strom, and K. M. Strom*. **30**, 307, 6-A1 (1976) (Abstr. in **204**, 312, 16-D9)
- Mass Loss in Red Giants and Supergiants. *Fred Sanner*. **32**, 115, 23-D1 (1976) (Abstr. in **208**, 272, 76-G10)
- Stars: Collapsed**
- On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. I. The Numerical Method for Computing Structure and Its Application to Uniformly Rotating Homogeneous Bodies. *E. Manning Butterworth and James R. Ipser*. **204**, 200, 15-C1 (1976)
- On the Structure and Stability of Rapidly Rotating Fluid Bodies in General Relativity. II. The Structure of Uniformly Rotating Pseudopolytropes. *E. Manning Butterworth*. **204**, 561, 20-E11 (1976)
- Discovery of X-Ray Pulsations in SMC X-1. *R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman*. **206**, L25, 47-B13 (1976)
- Soft X-Rays from Hercules X-1 During the "Off" State. *G. Fritz, S. Narayan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder*. **207**, L29, 62-C11 (1976)
- Stationary Stars Are Axisymmetric. *Lee Lindblom*. **208**, 873, 85-F2 (1976)
- Supernovae in Binaries, and the Possible Collapsed Nature of the Companion of HD 108. *Jacob D. Bekenstein*. **210**, 544, 109-F12 (1976)
- Stars: Combination Spectra**
- Orbital Evolution of a Singly Condensed, Close Binary by Mass Loss from the Primary and by Accretion Drag on the Condensed Member. *M. E. Alexander, W. Y. Chau, and R. N. Henriksen*. **204**, 879, 25-E6 (1976)
- Stars: Coronae**
- Sympathetic Stellar Flares and Electron Precipitation as Probes of Coronal Structure in Flare Stars. *D. J. Mullan*. **204**, 530, 20-C6 (1976)
- The Far-Ultraviolet (1180–1950 Å) Emission Spectrum of Arcturus. *W. R. McKinney, H. W. Moos, and J. W. Giles*. **205**, 848, 40-B5 (1976)
- Spectroscopic Survey of the Far Ultraviolet (1160–1700 Å) Emissions of Capella. *R. C. Vitz, H. Weiser, H. W. Moos, A. Weinstein, and E. S. Warden*. **205**, L35, 32-C6 (1976)
- Sympathetic Stellar Flares and Electron Precipitation as Probes of Coronal Structure in Flare Stars: Erratum. *D. J. Mullan*. **206**, 672, 51-E10 (1976) (Orig. paper in **204**, 530, 20-C6)
- Properties of Minimum-Flux Coronae in Dwarfs and Giants. *D. J. Mullan*. **209**, 171, 89-F13 (1976)
- Stars: δ Scuti**
- The Three Radial Modes and Evolutionary State of AC Andromedae. *W. S. Fitch and B. Szeidl*. **203**, 616, 9-E8 (1976)
- The Light Variation of Delta Scuti. *Alexander Muir and William Wehlau*. **205**, 155, 29-E12 (1976)
- Metallicism, Pulsation, and the Nature of 32 Virginis. *Donald W. Kurtz, Michel Breger, Steven W. Evans, and William H. Sandmann*. **207**, 181, 60-A4 (1976)
- Relationship between Radial Velocity and Light Variations in HR 7331 and Other Delta Scuti Stars. *Michel Breger, John Hutchins, and Leonard V. Kuhi*. **210**, 163, 104-G3 (1976)
- Metallicism and Pulsation: An Analysis of the Delta Delphini Stars. *Donald W. Kurtz*. **32**, 651, 33-G1 (1976) (Abstr. in **210**, 622, 110-F1)
- Stars: Dwarf Novae**
- Eclipses of U Geminorum. *S. Arnold, R. A. Berg, and J. G. Duthie*. **206**, 790, 54-B10 (1976)

- Observed Pulsations in Dwarf Novae at Maximum. *Paula Szkody*. **207**, 190, 60-A13 (1976)
- The Minimum State of Dwarf Novae. *Paula Szkody*. **207**, 824, 69-D8 (1976)
- A Study of the Rise to Maximum and the Decline in Dwarf Novae. *Paula Szkody*. **210**, 168, 104-G8 (1976)
- Stars: Early-Type**
- P Cygni Profiles in Zeta Ophiuchi and Zeta Puppis. *Donald C. Morton*. **203**, 386, 6-A10 (1976)
- Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXI. Absolute Energy Distribution of Stars in the Ultraviolet. *R. C. Bless, A. D. Code, and E. T. Fairchild*. **203**, 410, 6-C10 (1976)
- Empirical Effective Temperatures and Bolometric Corrections for Early-Type Stars. *A. D. Code, J. Davis, R. C. Bless, and R. Hanbury Brown*. **203**, 417, 6-D4 (1976)
- Stellar Winds from Hot Supergiants. *J. B. Hutchings*. **203**, 438, 6-E13 (1976)
- The OBN and OBC Stars. *Nolan R. Walborn*. **205**, 419, 34-B8 (1976)
- Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources. *Patrick Henry, Stuart Bowyer, Michael Lampton, Francesco Paresce, and Raymond Cruddace*. **205**, 426, 34-C3 (1976)
- On the Nonexpansion of the Galaxy. *Michael W. Ovenden and John Byl*. **206**, 57, 43-E4 (1976)
- Possible Mg II Emission in B Stars Observed from Copernicus. *Yoji Kondo, Jerry L. Modisette, Reginald J. Dufour, and Ray S. Whaley*. **206**, 163, 44-F4 (1976)
- Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIII. The Resonance Lines of Triply Ionized Carbon and Silicon in the Spectra of Hot Stars. *Robert J. Panek and Blair D. Savage*. **206**, 167, 44-F8 (1976)
- Spectroscopic Observations of the Candidate Star Coincident with A0620-00. *Theodore Gull, Donald G. York, Theodore P. Snow, Jr., and Karl G. Henize*. **206**, 260, 45-F6 (1976)
- HD 47129: The Most Massive Binary. *J. B. Hutchings and A. P. Cowley*. **206**, 490, 49-E7 (1976)
- Luminosity Effects in the Ultraviolet Spectrum of B5-B6 Stars. *Anne B. Underhill and Ernest Silversmith*. **206**, L56, 44-E11 (1976)
- Spectroscopic Studies of O-Type Binaries. II. HD 93205, O3 V, in the Carina Nebula. *Peter S. Conti and Nolan R. Walborn*. **207**, 502, 64-F10 (1976)
- H₂ in Expanding Circumstellar Shells. *David Hollenbach, Shih-I Chu, and Richard McCray*. **208**, 458, 79-G13 (1976)
- A New Interpretation of Luminous Blue Stars. *Richard Stothers*. **209**, 800, 99-D11 (1976)
- Detection of an Extreme-Ultraviolet Source in the Southern Sky. *Patrick Henry, Stuart Bowyer, C. G. Rapley, and J. L. Culhane*. **209**, L29, 92-C2 (1976)
- An Analysis of the Ultraviolet Spectrum of the Helium-rich Star HR 3089. *John B. Lester*. **210**, 153, 104-F7 (1976)
- The Exciting Stars of Low-Excitation Planetary and Diffuse Nebulae. *James B. Kaler*. **210**, 843, 114-D1 (1976)
- The Chemical Composition of Gamma Pegasi. *Geraldine J. Peters*. **30**, 551, 10-A1 (1976) (Abstr. in **205**, 310, 31-C12)
- The Ionization of a Low-Density Intercloud Medium by a Single O Star. *Bruce G. Elmegreen*. **32**, 147, 23-G1 (1976) (Abstr. in **208**, 273, 76-G11)
- Copernicus Ultraviolet Observations of Mass-Loss Effects in O and B Stars. *Theodore P. Snow, Jr. and Donald C. Morton*. **32**, 429, 30-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- Stars: Eclipsing Binaries**
- U Cephei: A Mass-Transfer Event. I. *E. C. Olson*. **204**, 141, 14-E9 (1976)
- An Elementary Theory of Eclipsing Depths of the Light Curve and Its Application to Beta Lyrae. *Su-Shu Huang and Deborah A. Brown*. **204**, 151, 14-F5 (1976)
- An Evolutionary Model of Beta Lyrae. *J. Ziolkowski*. **204**, 512, 20-A11 (1976)
- Parameters of Sanduleak 160 (SMC X-1) by Differential Corrections. *Robert E. Wilson and Anne T. Wilson*. **204**, 551, 20-E1 (1976)
- BM Orionis: The Enigmatic Eclipsing Binary in the Trapezium. *Daniel M. Popper and Miroslav Plavec*. **205**, 462, 34-E12 (1976)
- The Ultraviolet Spectrum of Beta Lyrae. II. *M. Hack, J. B. Hutchings, Y. Kondo, G. E. McCluskey, and M. K. Tulloch*. **206**, 777, 54-A11 (1976)
- The Secondary of U Sagittae. *Stephen A. Naftilan*. **206**, 785, 54-B5 (1976)
- Eclipses of U Geminorum. *S. Arnold, R. A. Berg, and J. G. Duthie*. **206**, 790, 54-B10 (1976)
- Luminosity Change in DQ Herculis. *Mark Radford Nelson and Edward C. Olson*. **207**, 195, 60-B4 (1976)
- The Two Optical Candidates of LMC X-2. *M. Pakull and N. V. Vidal*. **207**, 329, 61-E1 (1976)
- Rediscussion of Eclipsing Binaries. XI. The Red Giants RZ Cancri and AR Monocerotis. *Daniel M. Popper*. **208**, 142, 75-E2 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. *Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey*. **208**, 468, 80-A9 (1976)
- The Geometry of the Eclipse of a Pointlike Star by a Roche-Lobe-filling Companion. *Gary A. Chanan, John Middleditch, and Jerry E. Nelson*. **208**, 512, 80-E1 (1976)
- Mass Flow in the O7f Binary UW Canis Majoris. II. *George E. McCluskey, Jr. and Yoji Kondo*. **208**, 760, 84-D7 (1976)
- An Interpretation of Beta Lyrae. II. Disk Luminosity, Mass Ratio, and Nature of the Secondary Component. *Su-Shu Huang and Deborah A. Brown*. **208**, 780, 84-F6 (1976)
- Mass Transfer in DQ Herculis. *Mark Radford Nelson*. **209**, 168, 89-F10 (1976)
- The 35 Day Cycle of Hercules X-1. *Anthony J. Burke*. **209**, 556, 95-D8 (1976)
- The Eclipse Duration of the X-Ray Pulsar 3U 0900-40. *Yoram Avni*. **209**, 574, 95-E13 (1976)
- Spectrophotometry of the Algol-Type Binaries U Cephei, U Sagittae, and SX Cassiopeiae. *Craig G. Rhombs and John D. Fix*. **209**, 821, 99-F4 (1976)
- Uhuru Observations of Hercules X-1 during the Low State of the 35-Day Cycle. *C. Jones and W. Forman*. **209**, L131, 101-F6 (1976)
- Circumstellar Matter in the Binary V Puppis. *Donald G. York, Brian Flannery, and John Bahcall*. **210**, 143, 104-E11 (1976)
- Mass Flow in the O7f Binary UW Canis Majoris. II.: Addendum. *George E. McCluskey, Jr. and Yoji Kondo*. **210**, 277, 106-A9 (1976) (Orig. paper in **208**, 760, 84-D7)
- High Time-Resolution Spectroscopy of Beta Lyrae at H α . I. *A. Sanyal*. **210**, 853, 114-D12 (1976)
- U Cephei: A Mass-Transfer Event. II. Observations. *Edward C. Olson*. **31**, 1, 11-A2 (1976) (Abstr. in **205**, 655, 36-E10)
- Infrared Photometry of RT Lacertae. *E. F. Milone*. **31**, 93, 12-D1 (1976) (Abstr. in **205**, 657, 36-E12)
- Stars: Emission-Line**
- Emission Line Spectra of Individual Condensations of Herbig-Haro Objects. *K.-H. Böhm, W. A. Siegmund, and R. D. Schwartz*. **203**, 399, 6-B13 (1976)
- The Peculiar Object He 2-467. *J. H. Lutz, T. E. Lutz, J. B. Kaler, D. E. Osterbrock, and S. A. Gregory*. **203**, 481, 7-B9 (1976)
- Accelerated Gas Outflow in Early-Type Emission-Line Stars. *K. A. Marsh*. **203**, 551, 8-A1 (1976)
- Forbidden and Permitted Emission Lines of Singly Ionized Iron as a Diagnostic in the Investigation of Stellar Emission-Line Spectra. *R. Viotti*. **204**, 293, 16-C4 (1976)
- Copernicus Observations of Betelgeuse and Antares. *A. P. Bernat and D. L. Lambert*. **204**, 830, 25-A13 (1976)
- 8200 to 11200 Å Spectra of Peculiar Emission-Line Objects

Stars: Emission-Line—Continued

- with Infrared Excess. *Y. Andriolat and J. P. Swings*. **204**, L23, 27-B1 (1976)
- Shock-Wave Interpretation of Emission Lines in Long-Period Variable Stars. I. The Velocity of the Shock. *L. A. Willson*. **205**, 172, 29-G1 (1976)
- Ultraviolet Fe II Emission in Late-Type Stars. *Ann Merchant Boesgaard and Hans Boesgaard*. **205**, 448, 34-D13 (1976)
- The Far-Ultraviolet (1180–1950 Å) Emission Spectrum of Arcturus. *W. R. McKinney, H. W. Moos, and J. W. Giles*. **205**, 848, 40-B5 (1976)
- 1.3 to 2.5 Micron Spectra of MWC 349 and LkHα 101. *Rodger I. Thompson and Michael A. Reed*. **205**, L159, 42-D6 (1976)
- The Ultraviolet Spectrum of Beta Lyrae. II. *M. Hack, J. B. Hutchings, Y. Kondo, G. E. McCluskey, and M. K. Tulloch*. **206**, 777, 54-A11 (1976)
- The Emission Lines in the Vicinity of Hydrogen-Alpha in dMe Flare Star Spectra. *Simon P. Worden and Bradley M. Peterson*. **206**, L145, 56-E1 (1976)
- The Behavior of the Mg II Doublet Emissions near 2800 Å Observed in Late-Type Giants. *Y. Kondo, T. H. Morgan, and J. L. Modisette*. **207**, 167, 59-G2 (1976)
- Further Observations of the λ 10830 Helium Line in Stars and their Significance as a Measure of Stellar Activity. *H. Zirin*. **208**, 414, 79-D7 (1976)
- A Model for P Cygni Based on the He I Spectrum. *William R. Oegerle and David Van Blerkom*. **208**, 453, 79-G8 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. *Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey*. **208**, 468, 80-A9 (1976)
- An Interpretation of Beta Lyrae. II. Disk Luminosity, Mass Ratio, and Nature of the Secondary Component. *Su-Shu Huang and Deborah A. Brown*. **208**, 780, 84-F6 (1976)
- The Behavior of the Mg II Doublet Features near 2800 Å Observed in F, A, and B Supergiants. *Y. Kondo, T. H. Morgan, and J. L. Modisette*. **209**, 489, 94-F6 (1976)
- A Change in the Optical Spectrum of Zeta Puppis. *Peter S. Conti and Virpi S. Niemela*. **209**, L37, 92-C9 (1976)
- An Infall Model for the T Tauri Phenomenon. *Roger K. Ulrich*. **210**, 377, 108-A6 (1976)
- Emission-Line Stars in the Large Magellanic Cloud: Spectroscopy and Infrared Photometry. *D. A. Allen and I. S. Glass*. **210**, 666, 112-D11 (1976)
- Absolute Flux Calibration for the Mg II Observations near 2800 Angstroms. *Yoji Kondo, James E. Duval, Jerry L. Modisette, and T. H. Morgan*. **210**, 713, 113-A6 (1976)
- High Time-Resolution Spectroscopy of Beta Lyrae at H α . I. *A. Sanyal*. **210**, 853, 114-D12 (1976)
- High Time-Resolution Observations of UV Ceti Stars. *Thomas J. Moffett and Bernard W. Bopp*. **31**, 61, 11-G11 (1976) (Abstr. in **205**, 656, 36-E11)
- Stars: Evolution**
- Effects of Main-Sequence Brightening on the Luminosity Evolution of Elliptical Galaxies. *Beatrice M. Tinsley*. **203**, 63, 1-E9 (1976)
- Emission Line Spectra of Individual Condensations of Herbig-Haro Objects. *K.-H. Böhm, W. A. Siegmund, and R. D. Schwartz*. **203**, 399, 6-B13 (1976)
- $^{12}\text{C}/^{13}\text{C}$ Ratios in Stars Ascending the Giant Branch the First Time. *D. S. P. Dearborn, P. P. Eggleton, and D. N. Schramm*. **203**, 455, 6-G8 (1976)
- The Three Radial Modes and Evolutionary State of AC Andromedae. *W. S. Fitch and B. Szeidl*. **203**, 616, 9-E8 (1976)
- Synchronization in Binaries and Age. *Hugo Levato*. **203**, 680, 10-C7 (1976)
- The Triple-Alpha Rate, Screening Factors, and the Helium Flash: Erratum. *T. D. Tarbell and R. T. Rood*. **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 443, 56-E3)
- Carbon Stars in the Large Magellanic Cloud. *Dennis R. Crabtree, Harvey B. Richer, and B. E. Westerlund*. **203**, L81, 8-D10 (1976)
- The Evolutionary Status of Population II Cepheids. *Robert A. Gingold*. **204**, 116, 14-C10 (1976)
- Evolutionary Problems of Cepheids and Other Giants Investigated with New Radiative Opacities. *T. Richard Carson and Richard Stothers*. **204**, 461, 19-E1 (1976)
- Stellar Evolution at High Mass with Semiconvective Mixing According to the Schwarzschild Criterion. *Richard Stothers and Chao-wen Chin*. **204**, 472, 19-E12 (1976)
- A Study of Be Stars in Clusters. *R. Schild and W. Romanishin*. **204**, 493, 19-G6 (1976)
- Orbital Evolution of a Singly Condensed, Close Binary by Mass Loss from the Primary and by Accretion Drag on the Condensed Member. *M. E. Alexander, W. Y. Chau, and R. N. Henriksen*. **204**, 879, 25-E6 (1976)
- Slow Mass Transfer in Semidetached Binaries. *J. P. Pratt and P. A. Strittmatter*. **204**, L29, 17-C2 (1976)
- Evidence Favoring Nonevolutionary Cepheid Masses. *Norman Simon and Edward G. Schmidt*. **205**, 162, 29-F5 (1976)
- Nucleosynthesis and Star Formation of the Galaxy and Magellanic Clouds. *Gordon L. Olson and Jose H. Peña*. **205**, 527, 35-C8 (1976)
- The Frequency of Peculiar A and Metallic-Line Stars in Open Clusters. *Mark R. Hartoog*. **205**, 807, 39-E6 (1976)
- CRL 2688: A Post-Carbon-Star Object and Probable Planetary Nebula Progenitor. *B. Zuckerman, Daya P. Gilra, B. E. Turner, M. Morris, and Patrick Palmer*. **205**, L15, 32-B2 (1976)
- An Optical Search for Ionized Hydrogen in Globular Clusters. *Malcolm G. Smith, James E. Hesser, and Stephen J. Shawl*. **206**, 66, 43-E13 (1976)
- Spectra and Fabry-Perot Interferometry of AG Carinae and the Nebula. *Hugh M. Johnson*. **206**, 469, 49-C12 (1976)
- A Composite Hertzsprung-Russell Diagram for the Peculiar Red Giants. *John M. Scalzo*. **206**, 474, 49-D5 (1976)
- The Accreting Component of Mass-Exchange Binaries. *Roger K. Ulrich and Harry L. Burger*. **206**, 509, 49-F13 (1976)
- Luminosity Functions and the Evolution of Low-Mass Population I Giants. *Beatrice M. Tinsley and James E. Gunn*. **206**, 525, 50-A1 (1976)
- The Origin and Evolution of RR Lyrae Stars of High Metal Abundance. *Ronald E. Taam, Robert P. Kraft, and Nicholas Suntzeff*. **207**, 201, 60-B10 (1976)
- On the Evolution of Massive Stars through the Core Carbon-burning Phase. *Susan A. Lamb, Icko Iben, Jr., and W. Michael Howard*. **207**, 209, 60-C4 (1976)
- Stellar Production as a Source of ^3He in the Interstellar Medium. *Robert T. Rood, Gary Steigman, and Beatrice M. Tinsley*. **207**, L57, 62-E9 (1976)
- On the Efficient Computation of Sequences of Solar Models. *Michael J. Newman*. **208**, 224, 76-D1 (1976)
- The Giant Branch of Omega Centauri. I. Abundance Variations Due to Mixing. *M. S. Bessell and John Norris*. **208**, 369, 79-A1 (1976)
- Chemical Evolution in the Solar Neighborhood. II. Statistical Constraints, Finite Stellar Lifetimes, and Inhomogeneities. *Beatrice M. Tinsley*. **208**, 797, 84-G9 (1976)
- Effects of Heavy-Element Abundances on the Color-Magnitude Diagrams of Young Clusters in the Galaxy and the Magellanic Clouds. *Gretchen L. H. Harris and Robert G. Deupree*. **209**, 402, 93-G6 (1976)
- The Chemical Evolution of the Galactic Halo. *F. D. A. Hartwick*. **209**, 418, 94-A9 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. *Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer*. **209**, 525, 95-B4 (1976)
- The Evolution of Low-Mass Close Binary Systems. I. The Evolutionary Fate of Contact Binaries. *Ronald F. Webbink*. **209**, 829, 99-F12 (1976)
- The Age and Chemical Composition of the LMC Cluster NGC 2209. *S. C. B. Gascoigne, John Norris, M. S. Bessell, A. R. Hyland, and N. Visvanathan*. **209**, L25,

- 92-B11 (1976)
 The Stellar Content of the Nuclear Regions of Sc Galaxies. *Barry E. Turnrose*. **210**, 33, 103-C12 (1976)
 The Evolution of Rotating Stars. I. Method and Exploratory Calculations for a 7 M_{\odot} Star. *A. S. Endal and S. Sofia*. **210**, 184, 105-A10 (1976)
 Theoretical Models of Beta Cephei Stars Constructed with New Radiative Opacities. *Richard Stothers*. **210**, 434, 108-E9 (1976)
 Beryllium and Post-Main-Sequence Evolution. *Ann Merchant Boesgaard and Suzan Edwards Chesley*. **210**, 475, 109-A11 (1976)
 The Birthrate of Planetary Nebulae. *J. H. Cahn and S. P. Wyatt*. **210**, 508, 109-D3 (1976)
 The Giant Branch of ω Centauri. I. Abundance Variations Due to Mixing: Erratum. *M. S. Bessell and John Norris*. **210**, 618, 110-E10 (1976) (Orig. paper in **208**, 369, 79-A1)
 Overabundances of Sodium and the Heavy Isotopes of Magnesium in Strong-lined Elliptical Galaxies. *Ruth C. Peterson*. **210**, L123, 115-A8 (1976)
 The Nature of the Objects of Joy: A Study of the T Tauri Phenomenon. *A. E. Rydgren, S. E. Strom, and K. M. Strom*. **30**, 307, 6-A1 (1976) (Abstr. in **204**, 312, 16-D9)
 Evolved Stars in Open Clusters. *Gretchen L. Harris*. **30**, 451, 8-F1 (1976) (Abstr. in **205**, 309, 31-C11)
 The Evolution of Low-Mass Close Binary Systems. II. 1.50 M_{\odot} + 0.75 M_{\odot} : Evolution into Contact. *Ronald F. Webbink*. **32**, 583, 33-A2 (1976) (Abstr. in **210**, 623, 110-F2)
- Stars: Faint Blue**
 Gaps in the Blue Horizontal Branch. *Barry Newell and J. A. Graham*. **204**, 804, 24-G1 (1976)
 Stellar Population Samples at the Galactic Poles. III. *UBVR* Observations of Proper Motion Stars near the South Pole and the Luminosity Laws for the Halo and Old Disk Populations. *O. J. Eggen*. **30**, 351, 6-F1 (1976) (Abstr. in **204**, 313, 16-D10)
 Spectroscopy of 206 QSO Candidates and Radio Galaxies. *D. Wills and Beverley J. Wills*. **31**, 143, 13-B1 (1976) (Abstr. in **205**, 658, 36-E13)
- Stars: Flare**
 Simultaneous Radio and Optical Observations of UV Ceti-Type Flare Stars. *S. R. Spangler and T. J. Moffett*. **203**, 497, 7-C11 (1976)
 Radio Emission from a Source near the Flare Star AD Leonis. *R. D. Robinson, O. B. Slee, and A. G. Little*. **203**, L91, 3-E6 (1976)
 Sympathetic Stellar Flares and Electron Precipitation as Probes of Coronal Structure in Flare Stars. *D. J. Mullan*. **204**, 530, 20-C6 (1976)
 The Linear Polarization of BY Draconis. *Robert H. Koch and Raymond J. Pfeiffer*. **204**, L47, 17-D6 (1976)
 Zeeman Observations of the H α Region in BY Draconis. *Christopher M. Anderson, Lee W. Hartmann, and Bernard W. Bopp*. **204**, L51, 17-D9 (1976)
 A Search for Slowly Varying Radio Continuum Emission from UV Ceti Stars. *Steven R. Spangler and Stanley D. Shawhan*. **205**, 472, 34-F8 (1976)
 Mass Loss from Dwarf M Stars through Stellar Flaring. *Gary D. Colman and Simon P. Worden*. **205**, 475, 34-F11 (1976)
 Spectrophotometry of the Flare Star BY Draconis. *John D. Fix and Steven R. Spangler*. **205**, L163, 42-D9 (1976)
 Sympathetic Stellar Flares and Electron Precipitation as Probes of Coronal Structure in Flare Stars: Erratum. *D. J. Mullan*. **206**, 672, 51-E10 (1976) (Orig. paper in **204**, 530, 20-C6)
 The Emission Lines in the Vicinity of Hydrogen-Alpha in dMe Flare Star Spectra. *Simon P. Worden and Bradley M. Peterson*. **206**, L145, 56-E1 (1976)
 Thermal X-Rays from Stellar Flares: Reevaluation of Scaling from Solar Flares. *D. J. Mullan*. **207**, 289, 61-B1 (1976)
 Flares on White Dwarfs and Gamma-Ray Bursts. *D. J. Mullan*. **208**, 199, 76-B4 (1976)
 Mean Colors of Stellar Flare Continuum. *D. J. Mullan*. **210**, 702, 112-G9 (1976)
 UV Ceti Stars: Statistical Analysis of Observational Data. *C. H. Lacy, T. J. Moffett, and D. S. Evans*. **30**, 85, 2-C1 (1976) (Abstr. in **202**, 844, 99-G14)
 High Time-Resolution Observations of UV Ceti Stars. *Thomas J. Moffett and Bernard W. Bopp*. **31**, 61, 11-G11 (1976) (Abstr. in **205**, 656, 36-E11)
- Stars: Formation**
 Emission Line Spectra of Individual Condensations of Herbig-Haro Objects. *K.-H. Böhm, W. A. Siegmund, and R. D. Schwartz*. **203**, 399, 6-B13 (1976)
 On the Formation of Spiral and Elliptical Galaxies. *J. Richard Gott III and Trinh X. Thuan*. **204**, 649, 23-B8 (1976)
 Carbon Recombination Line Observations of the Sharpless 140 Region. *G. R. Knapp, Robert L. Brown, T. B. H. Kuiper, and R. K. Kakar*. **204**, 781, 24-E5 (1976)
 The Thermal Effects of H $_2$ Molecules in Rotating and Collapsing Spheroidal Gas Clouds. *John B. Hutchins*. **205**, 103, 29-B2 (1976)
 Nucleosynthesis and Star Formation of the Galaxy and Magellanic Clouds. *Gordon L. Olson and Jose H. Peña*. **205**, 527, 35-C8 (1976)
 Evolution of Rotating Interstellar Clouds. II. The Collapse of Protostars of 1, 2, and 5 M_{\odot} . *David C. Black and Peter Bodenheimer*. **206**, 138, 44-D7 (1976)
 H $_2$ O Maser Emission Associated with T Tauri and Other Regions of Star Formation. *G. R. Knapp and Mark Morris*. **206**, 713, 53-D2 (1976)
 Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. I. Formulation of the Problem and Method of Solution. *Telemachos Ch. Mouschovias*. **206**, 753, 53-G1 (1976)
 The Long-lived Radioisotopes as Monitors of Stellar, Galactic, and Cosmological Phenomena. *Hubert Reeves and Oliver Johns*. **206**, 958, 56-A7 (1976)
 A Far-Infrared Map of the Ophiuchus Dark Cloud Region. *G. G. Fazio, E. L. Wright, M. Zeilik II, and F. J. Low*. **206**, L165, 56-F5 (1976)
 Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. II. Results. *Telemachos Ch. Mouschovias*. **207**, 141, 59-E2 (1976)
 Shock-driven Implosion of Interstellar Gas Clouds and Star Formation. *Paul R. Woodward*. **207**, 484, 64-E5 (1976)
 The Origin of OB Associations and Extended Regions of High-Energy Activity in the Galaxy through Supernova Cascade Processes. *Hakki B. Ögelman and Stephen P. Maran*. **209**, 124, 89-C6 (1976)
 Gravitational Collapse of a Turbulent Vortex with Application to Star Formation. *Robert G. Deissler*. **209**, 190, 90-A4 (1976)
 Colliding Clouds and Star Formation in NGC 1333. *Robert B. Loren*. **209**, 466, 94-E1 (1976)
 The Extreme High-Velocity H $_2$ O Maser Features in W49 N, W51, and Sagittarius B2. *Mark Morris*. **210**, 100, 104-B6 (1976)
 The Dynamical Interaction of a Newly Formed Protostar with Infalling Matter: The Origin of Interstellar Grains. *John Robert Burke and Joseph Silk*. **210**, 341, 107-E12 (1976)
 Propagating Star Formation and Irregular Structure in Spiral Galaxies. *Mark W. Mueller and W. David Arnett*. **210**, 670, 112-E1 (1976)
 Multiplicity among Solar-Type Stars. *Helmut A. Abt and Saul G. Levy*. **30**, 273, 5-E1 (1976) (Abstr. in **204**, 313, 16-D10)
 Detailed Observations of the M17 Molecular Cloud Complex. *Charles J. Lada*. **32**, 603, 33-C1 (1976) (Abstr. in **210**, 622, 110-F1)
- Stars: High-Velocity**
 The Temperature, Luminosity, and Spectrum of Kapteyn's Star. *Robert F. Wing, Charles A. Dean, and Darrell J. MacConnell*. **205**, 186, 30-A2 (1976)

Stars: Horizontal Branch

The Evolutionary Status of Population II Cepheids. *Robert A. Gingold*. **204**, 116, 14-C10 (1976)

A Binary Hypothesis for the Subdwarf B Stars. *John G. Mengel, John Norris, and Peter G. Gross*. **204**, 488, 19-G1 (1976)

Gaps in the Blue Horizontal Branch. *Barry Newell and J. A. Graham*. **204**, 804, 24-G1 (1976)

Horizontal-Branch Evolution with Semiconvection. II. Theoretical Sequences. *Allen V. Sweigart and Peter G. Gross*. **32**, 367, 29-A2 (1976) (Abstr. in **209**, 650, 96-D11)

Stars: Hydrogen-Deficient

Determining the Stellar Masses in the Binary System Containing the Pulsar PSR 1913+16: Is the Companion a Helium Main-Sequence Star? *David H. Roberts, A. Ronald Masters, and W. David Arnett*. **203**, 196, 3-B6 (1976)

Degenerate Stars with Helium Atmospheres. *Jesse L. Greenstein*. **210**, 524, 109-E5 (1976)

Stars: Individual (arranged by Constellation name, HD number, and other designation)

By Constellation Name

The Three Radial Modes and Evolutionary State of AC Andromedae. *W. S. Fitch and B. Szeidl*. **203**, 616, 9-E8 (1976)

[RX Andromedae] Observed Pulsations in Dwarf Novae at Maximum. *Paula Szkody*. **207**, 190, 60-A13 (1976)

[α Bootis] The Far-Ultraviolet (1180–1950 Å) Emission Spectrum of Arcturus. *W. R. McKinney, H. W. Moos, and J. W. Giles*. **205**, 848, 40-B5 (1976)

[α Bootis] Redistribution Effects. *Walter L. Kelch and Robert W. Milkey*. **208**, 428, 79-E12 (1976)

[α Bootis] Isotopic Abundances of Magnesium in Arcturus. *J. Tomkin and D. L. Lambert*. **208**, 436, 79-F6 (1976)

The Geometry of VY Canis Majoris Derived from SiO Maser Lines. *David Van Blerkom and Lawrence Auer*. **204**, 775, 24-D13 (1976)

Rediscussion of Eclipsing Binaries. XI. The Red Giants RZ Cancri and AR Monocerotis. *Daniel M. Popper*. **208**, 142, 75-E2 (1976)

Mass Flow in the O7f Binary UW Canis Majoris. II. *George E. McCluskey, Jr. and Yoji Kondo*. **208**, 760, 84-D7 (1976)

Spectra and Fabry-Perot Interferometry of AG Carinae and the Nebula. *Hugh M. Johnson*. **206**, 469, 49-C12 (1976)

The Ultraviolet Variations of Iota Cassiopeiae. *M. R. Molnar, A. D. Mallama, A. V. Holm, and D. G. Soskey*. **209**, 146, 89-E2 (1976)

The Astrometric Binary μ Cassiopeiae: Photographically Almost Resolved. *Walter A. Feibelman*. **209**, 497, 94-G1 (1976)

Stellar Model Chromospheres. V. Alpha Centauri A (G2 V) and Alpha Centauri B (K1 V). *T. R. Ayres, J. L. Linsky, A. W. Rodgers, and R. L. Kurucz*. **210**, 199, 105-B11 (1976)

U Cephei: A Mass-Transfer Event. I. *E. C. Olson*. **204**, 141, 14-E9 (1976)

U Cephei: A Mass-Transfer Event. II. Observations. *Edward C. Olson*. **31**, 1, 11-A2 (1976) (Abstr. in **205**, 655, 36-E10)

Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIV. The Beta Cephei Stars Delta Ceti and Gamma Pegasi. *Janet Rountree Lesh*. **208**, 135, 75-D9 (1976)

Interpretation of the Spectral and Photometric Variations of R Coronae Borealis. *Lee Hartmann and John P. Apruzese*. **203**, 610, 9-E2 (1976)

Spectrophotometry of R Coronae Borealis during the Minimum of 1974. *Robert S. Patterson, John D. Fix, and John S. Neff*. **204**, 838, 25-B7 (1976)

An Analysis of the Variable Radial Velocity of Alpha Cygni. *L. B. Lucy*. **206**, 499, 49-F3 (1976)

[SS Cygni] Observed Pulsations in Dwarf Novae at Maximum. *Paula Szkody*. **207**, 190, 60-A13 (1976)

Three-Color Photometry of HDE 226868: The Optical Counterpart of Cygnus X-1. *Daniel F. Lester, Ira G. Nolt, Shirley A. Stearns, Peter Straton, and James V. Radostitz*.

205, 855, 40-B12 (1976)

The Early Infrared Development of Nova Cygni 1975. *J. S. Gallagher and E. P. Ney*. **204**, L35, 17-C7 (1976)

On the Period and Radius of Zeta Geminorum. *C. D. Scarfe*. **209**, 141, 89-D11 (1976)

Eclipses of U Geminorum. *S. Arnold, R. A. Berg, and J. G. Duthie*. **206**, 790, 54-B10 (1976)

Luminosity Change in DQ Herculis. *Mark Radford Nelson and Edward C. Olson*. **207**, 195, 60-B4 (1976)

Mass Transfer in DQ Herculis. *Mark Radford Nelson*. **209**, 168, 89-F10 (1976)

Analysis of Periodic Optical Variability in the Compact X-Ray Source Hercules X-1/HZ Herculis. *J. Deeter, L. Crosa, D. Gerend, and P. Boynton*. **206**, 861, 55-A1 (1976)

Analysis of Periodic Optical Variability in the Compact X-Ray Source Hercules X-1/HZ Herculis. *J. Deeter, L. Crosa, D. Gerend, and P. Boynton*. **206**, 861, 55-A1 (1976)

Spectroscopic Properties of HZ Herculis in Model Calculations. *Mordehai Milgrom*. **206**, 869, 55-A9 (1976)

Optical Pulsations in HZ Herculis. V. Pulse-Resolved Spectrophotometry. *Bruce Margon, Arthur Davidsen, and Stuart Bowyer*. **208**, L35, 77-C7 (1976)

Spectrophotometry of the X-Ray Binary HZ Herculis. *J. B. Oke*. **209**, 547, 95-C13 (1976)

Infrared Photometry of RT Lacertae. *E. F. Milone*. **31**, 93, 12-D1 (1976) (Abstr. in **205**, 657, 36-E12)

The Ultraviolet Spectrum of Alpha Lyrae. *Rosanna Faraggiana, Margherita Hack, and David S. Leckrone*. **32**, 501, 31-B1 (1976) (Abstr. in **209**, 648, 96-D9)

An Elementary Theory of Eclipsing Depths of the Light Curve and Its Application to Beta Lyrae. *Su-Shu Huang and Deborah A. Brown*. **204**, 151, 14-F5 (1976)

An Evolutionary Model of Beta Lyrae. *J. Ziolkowski*. **204**, 512, 20-A11 (1976)

The Ultraviolet Spectrum of Beta Lyrae. II. *M. Hack, J. B. Hutchings, Y. Kondo, G. E. McCluskey, and M. K. Tulloch*. **206**, 777, 54-A11 (1976)

Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. *Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey*. **208**, 468, 80-A9 (1976)

An Interpretation of Beta Lyrae. II. Disk Luminosity, Mass Ratio, and Nature of the Secondary Component. *Su-Shu Huang and Deborah A. Brown*. **208**, 780, 84-F6 (1976)

High Time-Resolution Spectroscopy of Beta Lyrae at Ha. I. *A. Sanyal*. **210**, 853, 114-D12 (1976)

Rediscussion of Eclipsing Binaries. XI. The Red Giants RZ Cancri and AR Monocerotis. *Daniel M. Popper*. **208**, 142, 75-E2 (1976)

Optical Polarization of Nova Monocerotis 1975 (=A0620-00). *Joseph F. Dolan*. **210**, 721, 113-B1 (1976)

[α Orionis] Copernicus Observations of Betelgeuse and Antares. *A. P. Bernat and D. L. Lambert*. **204**, 830, 25-A13 (1976)

A Lower Limit on the Surface $^{12}\text{C}/^{13}\text{C}$ Ratio in Alpha Orionis. *T. N. Gautier III, Rodger I. Thompson, Uwe Fink, and Harold P. Larson*. **205**, 841, 40-A10 (1976)

Digital Image Reconstruction Applied to Alpha Orionis. *C. R. Lynds, S. P. Worden, and J. W. Harvey*. **207**, 174, 59-G9 (1976)

[α Orionis] K 1 7699 Å Emission from the Betelgeuse Shell. *A. P. Bernat and D. L. Lambert*. **210**, 395, 108-B10 (1976)

BM Orionis: The Enigmatic Eclipsing Binary in the Trapezium. *Daniel M. Popper and Miroslav Plavec*. **205**, 462, 34-E12 (1976)

Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIV. The Beta Cephei Stars Delta Ceti and Gamma Pegasi. *Janet Rountree Lesh*. **208**, 135, 75-D9 (1976)

The Chemical Composition of Gamma Pegasi. *Geraldine J. Peters*. **30**, 551, 10-A1 (1976) (Abstr. in **205**, 310, 31-C12)

The Radio-flaring Triple System b Persei. *Graham Hill, G. C.*

- L. Aikman, Anne P. Cowley, C. T. Bolton, and J. C. Thomas.* **208**, 152, 75-E12 (1976)
- An Analysis of the Interstellar Material in the Line of Sight toward Omicron Persei. *Theodore P. Snow, Jr.* **204**, 759, 24-C11 (1976)
- Circumstellar Matter in the Binary V Puppis. *Donald G. York, Brian Flannery, and John Bahcall.* **210**, 143, 104-E11 (1976)
- Interstellar Molecular Hydrogen Toward Zeta Puppis. *D. C. Morton and H. L. Dinerstein.* **204**, 1, 13-A4 (1976)
- Mass Ejection from the O4f Star Zeta Puppis. *Henry J. G. L. M. Lamers and Donald C. Morton.* **32**, 715, 34-F1 (1976) (Abstr. in **210**, 624, 110-F3)
- Time-dependent Effects in the Nebular Shell of FG Sagittae. *J. Patrick Harrington and Paul A. Marioni.* **206**, 458, 49-C1 (1976)
- The Secondary of U Sagittae. *Stephen A. Naftilan.* **206**, 785, 54-B5 (1976)
- [α Scorpii] *Copernicus* Observations of Betelgeuse and Antares. *A. P. Bernat and D. L. Lambert.* **204**, 830, 25-A13 (1976)
- The Occultation of B Scorpii by Jupiter. VII. The Angular Diameters of B Scorpii A₁ and A₂. *J. L. Elliot, K. Rages, and J. Veverka.* **207**, 994, 71-C1 (1976)
- X-Ray Heating. II. The Reflection Effect in Scorpius X-1. *Stephen C. Perrenod.* **206**, 876, 55-B2 (1976)
- Spectroscopic Analysis of Scorpius X-1. *David Crampton, Anne P. Cowley, J. B. Hutchings, and C. Kaat.* **207**, 907, 70-C10 (1976)
- The Light Variation of Delta Scuti. *Alexander Muir and William Wehlau.* **205**, 155, 29-E12 (1976)
- H₂O Maser Emission Associated with T Tauri and Other Regions of Star Formation. *G. R. Knapp and Mark Morris.* **206**, 713, 53-D2 (1976)
- The Cepheid CS Velorum and the Cluster Ruprecht 79. *Gretchen L. H. Harris and Sidney van den Bergh.* **209**, 130, 89-C12 (1976)
- Metallicism, Pulsation, and the Nature of 32 Virginis. *Donald W. Kurtz, Michel Breger, Steven W. Evans, and William H. Sandmann.* **207**, 181, 60-A4 (1976)
- The Detection of Radio Emission from the RS CVn Binary HR 1099. *Frazer N. Owen, T. W. Jones, and D. M. Gibson.* **210**, 127, 106-C10 (1976)
- By Bright Star Number*
- HR 2727: A Double-Line Binary Containing a Magnetic Ap Star. *Walter K. Bonsack.* **209**, 160, 89-F2 (1976)
- An Analysis of the Ultraviolet Spectrum of the Helium-rich Star HR 3089. *John B. Lester.* **210**, 153, 104-F7 (1976)
- HR 7129: A Helium Variable with a Large Magnetic Field. *Richard J. Wolff and Sidney C. Wolff.* **203**, 171, 2-G5 (1976)
- Relationship between Radial Velocity and Light Variations in HR 7331 and Other Delta Scuti Stars. *Michel Breger, John Hutchins, and Leonard V. Kuhi.* **210**, 163, 104-G3 (1976)
- By Henry Draper Number*
- Supernovae in Binaries, and the Possible Collapsed Nature of the Companion of HD 108. *Jacob D. Bekenstein.* **210**, 544, 109-F12 (1976)
- The Spectrum of the Peculiar A Star HD 25354. *Diane M. Poyer.* **31**, 249, 15-E1 (1976) (Abstr. in **206**, 343, 46-E11)
- [HD 33793] The Composition of Kapteyn's Star and the M Subdwarfs. *J. R. Mould.* **210**, 402, 108-C5 (1976)
- [HD 33793] The Temperature, Luminosity, and Spectrum of Kapteyn's Star. *Robert F. Wing, Charles A. Dean, and Darrell J. MacConnell.* **205**, 186, 30-A2 (1976)
- Polarization from a Dust Ring Surrounding the Peculiar Be Star HD 45677. *George V. Coyne S.J. and Frederick J. Vrba.* **207**, 790, 69-B1 (1976)
- HD 47129: The Most Massive Binary. *J. B. Hutchings and A. P. Cowley.* **206**, 490, 49-E7 (1976)
- [HD 57060] Mass Flow in the O7f Binary UW Canis Majoris. II.: Addendum. *George E. McCluskey, Jr. and Yoji Kondo.* **210**, 277, 106-A9 (1976) (Orig. paper in **208**, 760, 84-D7)
- Spectroscopic Studies of O-Type Binaries. II. HD 93205, 03 V, in the Carina Nebula. *Peter S. Conti and Nolan R. Walborn.* **207**, 502, 64-F10 (1976)
- A Binary Model for the Infrared Source HD 101584. *Roberta M. Humphreys.* **206**, 122, 44-C1 (1976)
- Skylab Ultraviolet Stellar Spectra: A New White Dwarf, HD 149499. *B. S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and M. Laget.* **206**, 171, 47-F4 (1976)
- An Analysis of the Interstellar Material in the Line of Sight [HD 176021] The Chemical Composition of Two Subgiant CH Stars. *Christopher Sneden and Howard E. Bond.* **204**, 810, 24-G7 (1976)
- [HD 204613] The Chemical Composition of Two Subgiant CH Stars. *Christopher Sneden and Howard E. Bond.* **204**, 810, 24-G7 (1976)
- Three-Color Photometry of HDE 226868: The Optical Counterpart of Cygnus X-1. *Daniel F. Lester, Ira G. Nolt, Shirley A. Stearns, Peter Straton, and James V. Radostitz.* **205**, 855, 40-B12 (1976)
- The Photometric and Spectrographic Histories of HD 245770 \approx A0535+26: The Transient X-Ray Source. *Mark Stier and William Liller.* **206**, 257, 45-F3 (1976)
- By Other Designation*
- The Spectroscopic Binary Orbit in the Triple Star ADS 14893. *Frederick R. West.* **205**, 194, 30-A13 (1976)
- Spectroscopic Studies of O-Type Binaries. I. BD +40°4220: An Enigma Ripe for Resolution. *Bruce Bohannon and Peter S. Conti.* **204**, 797, 24-F8 (1976)
- An Improved Spectroscopic Orbit for the White Dwarf Eclipsing Binary BD +16°516. *Arthur Young.* **205**, 182, 29-G11 (1976)
- High-Frequency Stellar Oscillations. XI. The ZZ Ceti Star BPM 30551. *James E. Hesser, Barry M. Lasker, and Hermann E. Neupert.* **209**, 853, 100-A8 (1976)
- The Polarization of the Infrared Source CRL 2688 (The Egg Nebula). *Stephen J. Shawl and Massimo Tarenghi.* **204**, 125, 17-B12 (1976)
- Feige 24: A Very Hot White Dwarf. *Albert V. Holm.* **210**, 187, 111-D1 (1976)
- [HZ 43] Discovery of a Nonsolar Extreme-Ultraviolet Source. *Michael Lampton, Bruce Margon, Francesco Paresce, Robert Stern, and Stuart Bowyer.* **203**, 171, 8-C9 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. *Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer.* **209**, 525, 95-B4 (1976)
- LP 380-5/6: A Binary System Containing a Late-Type Degenerate Star. *Conard C. Dahn and Robert S. Harrington.* **204**, 191, 22-C5 (1976)
- The Photometric Properties of the Pulsating White Dwarf R548. *Edward L. Robinson, R. Edward Nather, and John T. McGraw.* **210**, 211, 105-C10 (1976)
- Stars: Interiors**
- Fluorine Power and Helium-Shell Flashes. *John M. Scalo and Keith H. Despain.* **203**, 667, 10-B8 (1976)
- The Triple-Alpha Rate, Screening Factors, and the Helium Flash: Erratum. *T. D. Tarbell and R. T. Rood.* **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 443, 56-E3)
- The Evolutionary Status of Population II Cepheids. *Robert A. Gingold.* **204**, 116, 14-C10 (1976)
- Evolutionary Problems of Cepheids and Other Giants Investigated with New Radiative Opacities. *T. Richard Carson and Richard Stothers.* **204**, 461, 19-E1 (1976)
- Stellar Evolution at High Mass with Semiconvective Mixing According to the Schwarzschild Criterion. *Richard Stothers and Chao-wen Chin.* **204**, 472, 19-E12 (1976)
- Effects of Convective Overshoot on Lithium Depletion in Main-Sequence Stars. *Joe M. Straus, J. B. Blake, and David N. Schramm.* **204**, 481, 19-F7 (1976)
- A Binary Hypothesis for the Subdwarf B Stars. *John G. Mengel, John Norris, and Peter G. Gross.* **204**, 488, 19-G1 (1976)

Stars: Interiors—Continued

- An Evolutionary Model of Beta Lyrae. *J. Ziolkowski*. **204**, 512, 20-A11 (1976)
- On the Constancy Along Cylinders of the Angular Velocity in the Solar Convection Zone. *B. R. Durney*. **204**, 589, 20-G11 (1976)
- Excitation of Pulsations in the CNO Ionization Zone of Luminous Stars. *Richard Stothers*. **204**, 853, 25-C8 (1976)
- Luminosity Functions and the Evolution of Low-Mass Population I Giants. *Beatrice M. Tinsley and James E. Gunn*. **206**, 525, 50-A1 (1976)
- The Role of Turbulent Pressure in Mixing-Length Convection. *R. F. Stellingwerf*. **206**, 543, 50-B5 (1976)
- Comments on the Diffusion Model of Turbulent Mixing. *Lawrence D. Cloutman and John G. Eöll*. **206**, 548, 50-B10 (1976)
- The Origin and Evolution of RR Lyrae Stars of High Metal Abundance. *Ronald E. Taam, Robert P. Kraft, and Nicholas Suntzeff*. **207**, 201, 60-B10 (1976)
- On the Evolution of Massive Stars through the Core Carbon-burning Phase. *Susan A. Lamb, Icko Iben, Jr., and W. Michael Howard*. **207**, 209, 60-C4 (1976)
- Stellar Convection Theory. I. The Anelastic Modal Equations. *Jean Latour, Edward A. Spiegel, Juri Toomre, and Jean-Paul Zahn*. **207**, 233, 60-E1 (1976)
- The Structure Equations of a Slowly Rotating, Fully Relativistic Solid Star. *H. Quintana*. **207**, 279, 61-A5 (1976)
- Stellar Convection Theory. II. Single-Mode Study of the Second Convection Zone in an A-Type Star. *Juri Toomre, Jean-Paul Zahn, Jean Latour, and Edward A. Spiegel*. **207**, 545, 65-C1 (1976)
- A Nonlocal Mixing-Length Theory of Convection for Use in Numerical Calculations. *Roger K. Ulrich*. **207**, 564, 65-D6 (1976)
- The Pulsational Properties of High-Luminosity Degenerate Stars with Hydrogen Burning near the Surface. *Samuel C. Vila and Edward M. Sion*. **207**, 820, 69-D4 (1976)
- Further Adventures of a Thermally Pulsing Star. *Icko Iben, Jr.* **208**, 165, 75-F11 (1976)
- The Giant Branch of Omega Centauri. I. Abundance Variations Due to Mixing. *M. S. Bessell and John Norris*. **208**, 369, 79-A1 (1976)
- Mass-Angular-Momentum Regimes for Certain Instabilities of a Compact, Rotating Stellar Core. *Paul J. Wiita and William H. Press*. **208**, 525, 80-F1 (1976)
- Neutron Star Structure: Theory, Observation, and Speculation. *V. R. Pandharipande, D. Pines, and R. A. Smith*. **208**, 550, 80-G13 (1976)
- A Criterion for the Maximum Extent of Flash-driven Convection. *Keith H. Despaigne and John M. Scalo*. **208**, 789, 84-G1 (1976)
- CNO Abundances and Hydrodynamic Models of the Nova Outburst. IV. Comparison with Observations. *Warren M. Sparks, Sumner Starrfield, and James W. Truran*. **208**, 819, 85-B3 (1976)
- Dynamical Effects of Possible Solid Cores in Neutron Stars and Degenerate Dwarfs. *G. Baym, D. Q. Lamb, and F. K. Lamb*. **208**, 829, 85-D13 (1976)
- Stationary Stars Are Axisymmetric. *Lee Lindblom*. **208**, 873, 85-F2 (1976)
- Neutrino-Neutrino Scattering and Supernovae. *Elliott G. Flowers and Peter G. Sutherland*. **208**, L19, 77-B7 (1976)
- Effects of Heavy-Element Abundances on the Color-Magnitude Diagrams of Young Clusters in the Galaxy and the Magellanic Clouds. *Greichen L. H. Harris and Robert G. Deupree*. **209**, 402, 93-G6 (1976)
- On the Structure of Contact Binaries. I. The Contact Discontinuity. *Frank H. Shu, Stephen H. Lubow, and Lawrence Anderson*. **209**, 536, 95-C2 (1976)
- A New Interpretation of Luminous Blue Stars. *Richard Stothers*. **209**, 800, 99-D11 (1976)
- A Possible Alternative to the r -Process. *J. B. Blake and D. N. Schramm*. **209**, 846, 100-A1 (1976)
- The Evolution of Rotating Stars. I. Method and Exploratory Calculations for a 7 M_{\odot} Star. *A. S. Endal and S. Sofia*. **210**, 184, 105-A10 (1976)
- Theoretical Models of Beta Cephei Stars Constructed with New Radiative Opacities. *Richard Stothers*. **210**, 434, 108-E9 (1976)
- Diffusion in Main-Sequence Stars: Radiation Forces, Time Scales, Anomalies. *Georges Michaud, Yves Charland, Sylvie Vauclair, and Gérard Vauclair*. **210**, 447, 108-F10 (1976)
- Neutrino Pair Bremsstrahlung Including Neutral Current Effects. *Duane A. Dicus, Edward W. Kolb, David N. Schramm, and David L. Tubbs*. **210**, 481, 109-B3 (1976)
- The Giant Branch of ω Centauri. I. Abundance Variations Due to Mixing: Erratum. *M. S. Bessell and John Norris*. **210**, 618, 110-E10 (1976) (Orig. paper in **208**, 369, 79-A1)
- About the Proper Choice of the Characteristic Length in the Convection Theory. *Erika Böhm-Vitense and George Driver Nelson*. **210**, 741, 113-C7 (1976)
- s -Process Studies: Branching and the Time Scale. *Richard A. Ward, Michael J. Newman, and Donald D. Clayton*. **31**, 33, 11-E1 (1976) (Abstr. in **205**, 655, 36-E10)
- Convective White-Dwarf Envelope Model Grids for H-, He-, and C-rich Compositions. *G. Fontaine and H. M. Van Horn*. **31**, 467, 19-B1 (1976) (Abstr. in **206**, 965, 56-A14)
- Horizontal-Branch Evolution with Semiconvection. II. Theoretical Sequences. *Allen V. Sweigart and Peter G. Gross*. **32**, 367, 29-A2 (1976) (Abstr. in **209**, 650, 96-D11)
- Stars: Late-Type**
- $^{12}\text{C}/^{13}\text{C}$ Ratios in Stars Ascending the Giant Branch the First Time. *D. S. P. Dearborn, P. P. Eggleton, and D. N. Schramm*. **203**, 455, 6-G8 (1976)
- The Triple-Alpha Rate, Screening Factors, and the Helium Flash: Erratum. *T. D. Tarbell and R. T. Rood*. **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 443, 56-E3)
- Stellar Population Samples at the Galactic Poles. IV. Luminosity Function for the M-Type Dwarfs at the South Pole. *O. J. Eggen*. **204**, 101, 14-B4 (1976)
- Possible Evidence for the Occurrence of Magnetic Fields of Order 10 Kilogauss in the Red Dwarf Star BY Draconis. *D. J. Mullan and R. A. Bell*. **204**, 818, 25-A1 (1976)
- Ultraviolet Observations of Cool Stars. V. The Local Density of Interstellar Matter. *W. McClintock, R. C. Henry, H. W. Moos, and J. L. Linsky*. **204**, L103, 22-D3 (1976)
- The Temperature, Luminosity, and Spectrum of Kapteyn's Star. *Robert F. Wing, Charles A. Dean, and Darrell J. MacConnell*. **205**, 186, 30-A2 (1976)
- Ultraviolet Fe II Emission in Late-Type Stars. *Ann Merchant Boesgaard and Hans Boesgaard*. **205**, 448, 34-D13 (1976)
- The Luminosity of the Very Red Supergiant near the Cluster TR 27. *Catherine L. Imhoff and Philip C. Keenan*. **205**, 455, 34-E6 (1976)
- A Search for Slowly Varying Radio Continuum Emission from UV Ceti Stars. *Steven R. Spangler and Stanley D. Shawhan*. **205**, 472, 34-F8 (1976)
- Mass Loss from Dwarf M Stars through Stellar Flaring. *Gary D. Colman and Simon P. Worden*. **205**, 475, 34-F11 (1976)
- Absolute Magnitudes of Stars from Widths of Chromospheric Ca II Emission Lines. *O. C. Wilson*. **205**, 823, 39-F12 (1976)
- The Far-Ultraviolet (1180–1950 Å) Emission Spectrum of Arcturus. *W. R. McKinney, H. W. Moos, and J. W. Giles*. **205**, 848, 40-B5 (1976)
- Spectroscopic Survey of the Far Ultraviolet (1160–1700 Å) Emissions of Capella. *R. C. Vitz, H. Weiser, H. W. Moos, A. Weinstein, and E. S. Warden*. **205**, L35, 32-C6 (1976)
- Properties of the Chromosphere-Corona Transition Region in Capella. *Bernhard M. Haisch and Jeffrey L. Linsky*. **205**, L39, 32-C10 (1976)
- The Fundamental Bands of CO as Chromospheric Indicators in Late-Type Giant Stars. *J. N. Heasley and R. W. Milkey*. **205**, L43, 32-D1 (1976)
- Late-Type Giants and Supergiants in the Galactic Center. *G.*

- Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams. **205**, L139, 42-C3 (1976)
- A Composite Hertzsprung-Russell Diagram for the Peculiar Red Giants. John M. Scalo. **206**, 474, 49-D5 (1976)
- Luminosity Functions and the Evolution of Low-Mass Population I Giants. Beatrice M. Tinsley and James E. Gunn. **206**, 525, 50-A1 (1976)
- Production of Galactic ^7Li by Slow Mass Loss. John M. Scalo. **206**, 795, 54-C1 (1976)
- The Behavior of the Mg II Doublet Emissions near 2800 Å Observed in Late-Type Giants. Y. Kondo, T. H. Morgan, and J. L. Modisette. **207**, 167, 59-G2 (1976)
- Departures from LTE in the Fundamental Bands of CO in Cool Stars. D. F. Carbon, R. W. Milkey, and J. N. Heasley. **207**, 253, 60-F7 (1976)
- M Dwarfs: Band Strengths in Halo and Disk Populations. J. R. Mould. **207**, 535, 65-B4 (1976)
- Rediscussion of Eclipsing Binaries. XI. The Red Giants RZ Cancri and AR Monocerotis. Daniel M. Popper. **208**, 142, 75-E2 (1976)
- The Giant Branch of Omega Centauri. I. Abundance Variations Due to Mixing. M. S. Bessell and John Norris. **208**, 369, 79-A1 (1976)
- Infrared Observations and the Structure of the Lower Main Sequence. J. R. Mould and A. R. Hyland. **208**, 399, 79-C4 (1976)
- Further Observations of the $\lambda 10830$ Helium Line in Stars and Their Significance as a Measure of Stellar Activity. H. Zirin. **208**, 414, 79-D7 (1976)
- Isotopic Abundances of Magnesium in Arcturus. J. Tomkin and D. L. Lambert. **208**, 436, 79-F6 (1976)
- Digital Restoration of an Image of Betelgeuse. M. J. McDonnell and R. H. T. Bates. **208**, 443, 79-F13 (1976)
- Subdwarfs among the Old Disk Population. F. D. A. Hartwick, D. Crampton, and A. P. Cowley. **208**, 776, 84-F2 (1976)
- A Search for Variable 430 MHz Continuum Emission from Red Giant Stars. John D. Fix and Steven R. Spangler. **209**, 503, 94-G6 (1976)
- Model Dust Envelopes around Late-Type Stars. T. W. Jones and K. M. Merrill. **209**, 509, 95-A1 (1976)
- The Composition of Kapteyn's Star and the M Subdwarfs. J. R. Mould. **210**, 402, 108-C5 (1976)
- The Giant Branch of ω Centauri. I. Abundance Variations Due to Mixing: Erratum. M. S. Bessell and John Norris. **210**, 618, 110-E10 (1976) (Orig. paper in **208**, 369, 79-A1)
- The $^{12}\text{C}/^{13}\text{C}$ Ratio in Stellar Atmospheres. VI. Five Luminous Cool Stars. K. H. Hinkle, D. L. Lambert, and R. L. Snell. **210**, 684, 112-F4 (1976)
- The $^{12}\text{C}/^{13}\text{C}$ Ratio in Stellar Atmospheres. VII. 38 Giants and Supergiants. J. Tomkin, R. E. Luck, and D. L. Lambert. **210**, 694, 112-G1 (1976)
- An Explanation of the Super-Metal-rich Phenomenon in Field K Giants as an Effect of a Difference in Surface Temperature. Ruth Peterson. **30**, 61, 1-G1 (1976) (Abstr. in **202**, 844, 99-G14)
- Evolved Stars in Open Clusters. Gretchen L. Harris. **30**, 451, 8-F1 (1976) (Abstr. in **205**, 309, 31-C11)
- Mass Loss in Red Giants and Supergiants. Fred Sanner. **32**, 115, 23-D1 (1976) (Abstr. in **208**, 272, 76-G10)
- Stars: Limb Darkening**
- Stars: Long-Period Variables**
- Shock-Wave Interpretation of Emission Lines in Long-Period Variable Stars. I. The Velocity of the Shock. L. A. Willson. **205**, 172, 29-G1 (1976)
- On the Stellar Velocity of Long-Period Variables and OH Maser Stars. Mark J. Reid. **207**, 784, 69-A8 (1976)
- A Search for Variable 430 MHz Continuum Emission from Red Giant Stars. John D. Fix and Steven R. Spangler. **209**, 503, 94-G6 (1976)
- The Stellar Velocity of Long-Period Variables. Mark J. Reid and Dale F. Dickinson. **209**, 505, 94-G8 (1976)
- On the Acceleration of Shock Waves in the Atmosphere of Cool Mira Variable Giants. Stephen Slutz. **210**, 750, 113-D2 (1976)
- Silicon Monoxide in the 4 Micron Infrared Spectrum of Long-Period Variables. Kenneth H. Hinkle, Thomas G. Barnes, David L. Lambert, and Reinhard Beer. **210**, L141, 115-B11 (1976)
- Water Emission from Infrared Stars. Dale F. Dickinson. **30**, 259, 5-D1 (1976) (Abstr. in **204**, 312, 16-D9)
- Stars: Luminosities**
- Effects of Main-Sequence Brightening on the Luminosity Evolution of Elliptical Galaxies. Beatrice M. Tinsley. **203**, 63, 1-E9 (1976)
- Further Evidence Concerning the Local Density of Red Dwarfs. D. Weistrop. **204**, 113, 14-C7 (1976)
- Absolute Magnitudes of Stars from Widths of Chromospheric Ca II Emission Lines. O. C. Wilson. **205**, 823, 39-F12 (1976)
- A Composite Hertzsprung-Russell Diagram for the Peculiar Red Giants. John M. Scalo. **206**, 474, 49-D5 (1976)
- The Cepheid CS Velorum and the Cluster Ruprecht 79. Gretchen L. H. Harris and Sidney van den Bergh. **209**, 130, 89-C12 (1976)
- Stars: Magnetic**
- HR 7129: A Helium Variable with a Large Magnetic Field. Richard J. Wolff and Sidney C. Wolff. **203**, 171, 2-G5 (1976)
- Possible Evidence for the Occurrence of Magnetic Fields of Order 10 Kilogauss in the Red Dwarf Star BY Draconis. D. J. Mullan and R. A. Bell. **204**, 818, 25-A1 (1976)
- Zeeman Observations of the H α Region in BY Draconis. Christopher M. Anderson, Lee W. Hartmann, and Bernard W. Bopp. **204**, L51, 17-D9 (1976)
- On the Origin of Continuum Polarization in White Dwarfs. W. H. Ingham, K. Brecher, and I. Wasserman. **207**, 518, 65-A1 (1976)
- Accretion onto Magnetized Neutron Stars: Structure and Interchange Instability of a Model Magnetosphere. Jonathan Arons and Susan M. Lea. **207**, 914, 70-D3 (1976)
- Are the Broad Continuous Absorption Features of Magnetic Peculiar A Stars Bound-free Discontinuities? Saul J. Adelman and Pamela R. Wolken. **207**, L59, 59-F8 (1976)
- Flares on White Dwarfs and Gamma-Ray Bursts. D. J. Mullan. **208**, 199, 76-B4 (1976)
- Are There Spots on Magnetic White Dwarfs? Egidio Landi Degl'Innocenti. **209**, 208, 90-B9 (1976)
- On the Magneto-rotating Polytrope. M. K. Das and J. N. Tandon. **209**, 233, 90-D7 (1976)
- Magnetic Fields and Diffusion Processes in Peculiar A Stars. II. Precession and the Oblique Rotator Model. Steven N. Shore and Saul J. Adelman. **209**, 816, 99-E13 (1976)
- H α Polarization and Line Profiles in White Dwarfs with Strong Magnetic Fields. Ermanno F. Borra. **209**, 858, 100-B1 (1976)
- Polarized Radiation in Magnetic White Dwarfs. Leonard A. Rosi, Robert L. Zimmerman, and James C. Kemp. **209**, 868, 100-B11 (1976)
- Observations of the Transverse Zeeman Effect in the Magnetic Star Beta Coronae Borealis: Evidence for the Oblique Rotator Model. Ermanno F. Borra and Arthur H. Vaughan. **210**, L145, 115-C1 (1976)
- Stars: Massive**
- Stellar Evolution at High Mass with Semiconvective Mixing According to the Schwarzschild Criterion. Richard Stothers and Chao-wen Chin. **204**, 472, 19-E12 (1976)
- Excitation of Pulsations in the CNO Ionization Zone of Luminous Stars. Richard Stothers. **204**, 853, 25-C8 (1976)
- On the Evolution of Massive Stars through the Core Carbon-burning Phase. Susan A. Lamb, Icko Iben, Jr., and W. Michael Howard. **207**, 209, 60-C4 (1976)
- Stars: Mass Loss**
- P Cygni Profiles in Zeta Ophiuchi and Zeta Puppis. Donald C. Morton. **203**, 386, 6-A10 (1976)
- Stellar Winds from Hot Supergiants. J. B. Hutchings. **203**,

Stars: Mass Loss—Continued

- 438, 6-E13 (1976)
- $^{12}\text{C}/^{13}\text{C}$ Ratios in Stars Ascending the Giant Branch the First Time. D. S. P. Dearborn, P. P. Eggleton, and D. N. Schramm. **203**, 455, 6-G8 (1976)
- Accelerated Gas Outflow in Early-Type Emission-Line Stars. K. A. Marsh. **203**, 551, 8-A1 (1976)
- High-Dispersion Observations of Emission Lines in the Post-Nova HR Delphini. J. S. Gallagher and Christopher M. Anderson. **203**, 625, 9-F4 (1976)
- Radio Emission from the Wolf-Rayet Binary γ^2 Velorum. E. R. Seaquist. **203**, L35, 4-E11 (1976)
- Evidence for Mass Loss at Moderate to High Velocity in Be Stars. Theodore P. Snow, Jr. and J. M. Marlborough. **203**, L87, 8-E2 (1976)
- Mass Loss in Globular-Cluster Red Giants. Judith G. Cohen. **203**, L127, 11-E10 (1976)
- U Cephei: A Mass-Transfer Event. I. E. C. Olson. **204**, 141, 14-E9 (1976)
- H I in Early-Type Galaxies. II. Mass Loss and Galactic Winds. S. M. Faber and J. S. Gallagher. **204**, 365, 18-D12 (1976)
- Mass Loss in Red Giants and Supergiants. Fred Sanner. **204**, L41, 17-D1 (1976)
- A Cyclic Thermal Instability in Contact Binary Stars. Brian P. Flannery. **205**, 217, 30-D1 (1976)
- Mass Loss from Dwarf M Stars through Stellar Flaring. Gary D. Colman and Simon P. Worden. **205**, 475, 34-F11 (1976)
- Mass Loss by Cool Carbon Stars. L. B. Lucy. **205**, 482, 34-G4 (1976)
- Mass Loss and Asymmetries in the Lines of Iota Coronae Borealis. Alan H. Karp. **205**, L93, 37-C7 (1976)
- On the Nonexpansion of the Galaxy. Michael W. Ovenden and John Byl. **206**, 57, 43-E4 (1976)
- An Optical Search for Ionized Hydrogen in Globular Clusters. Malcolm G. Smith, James E. Hesser, and Stephen J. Shawl. **206**, 66, 43-E13 (1976)
- On the Limiting Mass of Carbon-Oxygen White Dwarfs. John M. Scalo. **206**, 215, 45-C1 (1976)
- An Analysis of the Variable Radial Velocity of Alpha Cygni. L. B. Lucy. **206**, 499, 49-F3 (1976)
- The Accreting Component of Mass-Exchange Binaries. Roger K. Ulrich and Harry L. Burger. **206**, 509, 49-F13 (1976)
- Eclipses of U Geminorum. S. Arnold, R. A. Berg, and J. G. Duthie. **206**, 790, 54-B10 (1976)
- Production of Galactic ^7Li by Slow Mass Loss. John M. Scalo. **206**, 795, 54-C1 (1976)
- Polarization from a Dust Ring Surrounding the Peculiar Be Star HD 45677. George V. Coyne S.J. and Frederick J. Vrba. **207**, 790, 69-B1 (1976)
- The Minimum State of Dwarf Novae. Paula Szkody. **207**, 824, 69-D8 (1976)
- Mass Flow in the O7f Binary UW Canis Majoris. II. George E. McCluskey, Jr. and Yoji Kondo. **208**, 760, 84-D7 (1976)
- CNO Abundances and Hydrodynamic Models of the Nova Outburst. IV. Comparison with Observations. Warren M. Sparks, Sumner Starrfield, and James W. Truran. **208**, 819, 85-B3 (1976)
- Mass Transfer in DQ Herculis. Mark Radford Nelson. **209**, 168, 89-F10 (1976)
- Properties of Minimum-Flux Coronae in Dwarfs and Giants. D. J. Mullan. **209**, 171, 89-F13 (1976)
- The Behavior of the Mg II Doublet Features near 2800 Å Observed in F, A, and B Supergiants. Y. Kondo, T. H. Morgan, and J. L. Modisette. **209**, 489, 94-F6 (1976)
- Mass Flow in the O7f Binary UW Canis Majoris. II.: Addendum. George E. McCluskey, Jr. and Yoji Kondo. **210**, 277, 106-A9 (1976) (Orig. paper in **208**, 760, 84-D7)
- On the Acceleration on Shock Waves in the Atmosphere of Cool Mira Variable Giants. Stephen Slutz. **210**, 750, 113-D2 (1976)
- U Cephei: A Mass-Transfer Event. II. Observations. Edward C. Olson. **31**, 1, 11-A2 (1976) (Abstr. in **205**, 655, 36-E10)
- Diffusion in Stars: Ionization and Abundance Effects. Thierry Montmerle and Georges Michaud. **31**, 489, 19-D1 (1976) (Abstr. in **206**, 966, 56-B1)
- Mass Loss in Red Giants and Supergiants. Fred Sanner. **32**, 115, 23-D1 (1976) (Abstr. in **208**, 272, 76-G10)
- Copernicus Ultraviolet Observations of Mass-Loss Effects in O and B Stars. Theodore P. Snow, Jr. and Donald C. Morton. **32**, 429, 30-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- Mass Ejection from the O4f Star Zeta Puppis. Henny J. G. L. M. Lamers and Donald C. Morton. **32**, 715, 34-F1 (1976) (Abstr. in **210**, 624, 110-F3)
- Stars: Metallic-Line**
- MK Morphology of a Group of Am Stars. Helmut A. Abt and W. W. Morgan. **205**, 446, 34-D9 (1976)
- The Frequency of Peculiar A and Metallic-Line Stars in Open Clusters. Mark R. Hartoog. **205**, 807, 39-E6 (1976)
- A Survey of Peculiar and Metallic-lined A Stars for the Actinides. Charles R. Cowley, G. C. L. Aikman, and M. R. Hartoog. **206**, 196, 45-A10 (1976)
- Metallicism, Pulsation, and the Nature of 32 Virginis. Donald W. Kurtz, Michel Breger, Steven W. Evans, and William H. Sandmann. **207**, 181, 60-A4 (1976)
- Stellar Convection Theory. II. Single-Mode Study of the Second Convection Zone in an A-Type Star. Juri Toomre, Jean-Paul Zahn, Jean Latour, and Edward A. Spiegel. **207**, 545, 65-C1 (1976)
- MK Morphology of a Group of Am Stars: Addendum. Helmut A. Abt and W. W. Morgan. **209**, 961, 101-B12 (1976) (Orig. paper in **205**, 446, 34-D9)
- Diffusion in Main-Sequence Stars: Radiation Forces, Time Scales, Anomalies. Georges Michaud, Yves Charland, Sylvie Vauclair, and Gérard Vauclair. **210**, 447, 108-F10 (1976)
- Diffusion in Stars: Ionization and Abundance Effects. Thierry Montmerle and Georges Michaud. **31**, 489, 19-D1 (1976) (Abstr. in **206**, 966, 56-B1)
- Yttrium, Barium, and the Lanthanides in Ap and Am Stars. Charles R. Cowley. **32**, 631, 33-E1 (1976) (Abstr. in **210**, 621, 110-E14)
- Metallicism and Pulsation: An Analysis of the Delta Delphini Stars. Donald W. Kurtz. **32**, 651, 33-G1 (1976) (Abstr. in **210**, 622, 110-F1)
- Stars: Neutron**
- A Possible Optical Identification for PSR 0833-45. Barry M. Lasker. **203**, 193, 3-B1 (1976)
- Crust-Breaking by Neutron Superfluids and the Vela Pulsar Glitches. M. Ruderman. **203**, 213, 3-C9 (1976)
- Interaction of Neutron Stars with Black Holes. R. M. Misra. **203**, 704, 10-E4 (1976)
- Observational Constraints on Pulsar Binary Motion. D. Q. Lamb and F. K. Lamb. **204**, 168, 14-G9 (1976)
- Variational Analysis of Rotating Neutron Stars. Marek A. Abramowicz and Robert V. Wagoner. **204**, 896, 25-F9 (1976)
- An Opaque Shell around Hercules X-1? Richard McCray and Frederick K. Lamb. **204**, L115, 27-A6 (1976)
- A Higher Stability Limit for Neutron Stars. Richard L. Bowers, A. M. Gleeson, and R. Daryl Pedigo. **205**, 261, 30-G4 (1976)
- Neutrino Pair Emission from Finite-Temperature Neutron Superfluid and the Cooling of Young Neutron Stars. Elliott Flowers, Malvin Ruderman, and Peter Sutherland. **205**, 541, 35-D8 (1976)
- Transport Properties of Dense Matter. Elliott Flowers and Naoki Itoh. **206**, 281, 45-C4 (1976)
- A New Pulsar Atmospheric Model. I. Aligned Magnetic and Rotational Axes. E. Atlee Jackson. **206**, 831, 54-E10 (1976)
- The 3U 0900-40 Binary System: Orbital Elements and Masses. S. Rappaport, P. C. Joss, and J. E. McClintock. **206**, L103, 52-C8 (1976)
- Rapidly Rotating, Post-Newtonian Neutron Stars. Stuart L. Shapiro and Alan P. Lightman. **207**, 263, 60-G3 (1976)
- The Structure Equations of a Slowly Rotating, Fully

- Relativistic Solid Star. *H. Quintana*. **207**, 279, 61-A5 (1976)
- The Binary Pulsar: Physical Processes, Possible Companions, and Evolutionary Histories. *Larry L. Smarr and Roger Blandford*. **207**, 574, 65-E2 (1976)
- Matter in Superstrong Magnetic Fields and the Structure of a Neutron Star's Surface. *W. Hillebrandt and E. Müller*. **207**, 589, 65-F3 (1976)
- Accretion onto Magnetized Neutron Stars: Structure and Interchange Instability of a Model Magnetosphere. *Jonathan Arons and Susan M. Lea*. **207**, 914, 70-D3 (1976)
- The Period-Pulse-Width Distribution of Pulsars and Their Division into Three Classes. *D. H. Roberts*. **207**, 949, 70-F11 (1976)
- Mass-Angular-Momentum Regimes for Certain Instabilities of a Compact, Rotating Stellar Core. *Paul J. Witta and William H. Press*. **208**, 525, 80-F1 (1976)
- Neutron Star Structure: Theory, Observation, and Speculation. *V. R. Pandharipande, D. Pines, and R. A. Smith*. **208**, 550, 80-G13 (1976)
- Studies of Optical Pulsations from HZ Herculis/Hercules X-1: A Determination of the Mass of the Neutron Star. *John Middleton and Jerry Nelson*. **208**, 567, 81-B2 (1976)
- Dynamical Effects of Possible Solid Cores in Neutron Stars and Degenerate Dwarfs. *G. Baym, D. Q. Lamb, and F. K. Lamb*. **208**, 829, 85-D13 (1976)
- Superfluidity in Neutron Stars. II. After a Period Jump. *George Greenstein*. **208**, 836, 85-C6 (1976)
- Radius of the Vela Pulsar. *George Greenstein and Jeffrey E. McClintock*. **208**, L41, 77-C12 (1976)
- Supernovae in Binary Systems: Erratum. *J. C. Wheeler, M. Lecar, and C. F. McKee*. **209**, 961, 101-B12 (1976) (Orig. paper in **200**, 145, 64-E1)
- Pulsating X-Ray Sources: Slowly Rotating Neutron Stars? *Susan M. Lea*. **209**, L69, 96-G1 (1976)
- The Tidal Disruption of Neutron Stars by Black Holes in Close Binaries. *James M. Lattimer and David N. Schramm*. **210**, 549, 109-G3 (1976)
- Accretion onto Magnetized Neutron Stars: Normal Mode Analysis of the Interchange Instability at the Magnetopause. *Jonathan Arons and Susan M. Lea*. **210**, 792, 113-G3 (1976)
- Stars: Novae**
- OSO-7 Observations of the X-Ray Nova 3U 1543-47. *Fuk Kwok Li, George F. Sprott, and George W. Clark*. **203**, 187, 3-A7 (1976)
- Grains of Anomalous Isotopic Composition from Novae. *D. D. Clayton and F. Hoyle*. **203**, 490, 7-C4 (1976)
- High-Dispersion Observations of Emission Lines in the Post-Nova HR Delphini. *J. S. Gallagher and Christopher M. Anderson*. **203**, 625, 9-F4 (1976)
- X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. *R. Doxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaile, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper*. **203**, L9, 4-C12 (1976)
- Optical Identification of A0620-00. *F. Boley, R. Wolfson, H. Bradt, R. Doxsey, G. Jernigan, and W. A. Hiltner*. **203**, L13, 4-D2 (1976)
- Optical Observations of the Recurrent Nova Associated with A0620-00: 1917-1975. *Lola J. Eachus, Edward L. Wright, and William Liller*. **203**, L17, 4-D8 (1976)
- Nova Cygni 1975: Narrow-Band Polarimetry and Photometry 0.36-1.7 Microns. *James C. Kemp and Richard J. Rudy*. **203**, L131, 11-E13 (1976)
- Magnetic Fields and the Nova Outburst. *William K. Rose and Eugene Howard Scott*. **204**, 516, 20-B1 (1976)
- The Early Infrared Development of Nova Cygni 1975. *J. S. Gallagher and E. P. Ney*. **204**, L35, 17-C7 (1976)
- Spectroscopic Observations of the Candidate Star Coincident with A0620-00. *Theodore Gull, Donald G. York, Theodore P. Snow, Jr., and Karl G. Henize*. **206**, 260, 45-F6 (1976)
- Luminosity Change in DQ Herculis. *Mark Radford Nelson and Edward C. Olson*. **207**, 195, 60-B4 (1976)
- H-Alpha Variations in Nova Cygni 1975. *Bruce Campbell*. **207**, L41, 62-D9 (1976)
- CNO Abundances and Hydrodynamic Models of the Nova Outburst. IV. Comparison with Observations. *Warren M. Sparks, Sumner Starrfield, and James W. Truran*. **208**, 819, 85-B3 (1976)
- A Single-Star Interpretation of Nova Cygni 1975. *S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. M. Van Horn*. **208**, L23, 77-B10 (1976)
- Search for X-Ray Line Emission from A0620-00. *H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff*. **208**, L27, 77-B13 (1976)
- Mass Transfer in DQ Herculis. *Mark Radford Nelson*. **209**, 168, 89-F10 (1976)
- Light Curve of Nova V1500 Cygni 1975. *P. J. Young, H. G. Corwin, Jr., J. Bryan, and G. de Vaucouleurs*. **209**, 882, 100-C11 (1976)
- The Distance-Reddening Law for Nova Cygni (1975) = V1500 Cygni. *R. E. Schild*. **209**, L35, 92-C7 (1976)
- Optical Polarization of Nova Monocerotis 1975 (=A0620-00). *Joseph F. Dolan*. **210**, 721, 113-B1 (1976)
- Stars: Of-Type**
- Spectroscopic Studies of O-Type Binaries. I. BD +40°4220: An Enigma Ripe for Resolution. *Bruce Bohannan and Peter S. Conti*. **204**, 797, 24-F8 (1976)
- Fabry-Perot Observations of Peculiar Hydrogen-Emission Nebulae. *Hugh M. Johnson*. **206**, 243, 45-E1 (1976)
- Mass Flow in the O7f Binary Uw Canis Majoris. II. *George E. McCluskey, Jr. and Yoji Kondo*. **208**, 760, 84-D7 (1976)
- Mass Flow in the O7f Binary UW Canis Majoris. II.: Addendum. *George E. McCluskey, Jr. and Yoji Kondo*. **210**, 277, 106-A9 (1976) (Orig. paper in **208**, 760, 84-D7)
- Mass Ejection from the O4f Star Zeta Puppis. *Henry J. G. L. M. Lamers and Donald C. Morton*. **32**, 715, 34-F1 (1976) (Abstr. in **210**, 624, 110-F3)
- Stars: Peculiar A**
- Isotopic Abundances of Hg in Mercury Stars Inferred from Hg II λ 3984. *R. E. White, Arthur H. Vaughan, Jr., G. W. Preston, and J. P. Swings*. **204**, 131, 14-D13 (1976)
- Asymmetries in the Absorption Lines of Manganese Stars. *Myron A. Smith and Sidney B. Parsons*. **205**, 430, 34-C7 (1976)
- The Application of the Diffusion Hypothesis to Extreme Overabundance Factors in Ap Stars. *Charles R. Cowley and Carol A. Day*. **205**, 440, 34-D3 (1976)
- The Frequency of Peculiar A and Metallic-Line Stars in Open Clusters. *Mark R. Hartoog*. **205**, 807, 39-E6 (1976)
- A Survey of Peculiar and Metallic-lined A Stars for the Actinides. *Charles R. Cowley, G. C. L. Aikman, and M. R. Hartoog*. **206**, 196, 45-A10 (1976)
- Are the Broad Continuous Absorption Features of Magnetic Peculiar A Stars Bound-free Discontinuities? *Saul J. Adelman and Pamela R. Wolken*. **207**, L59, 59-F8 (1976)
- The Ultraviolet Variations of Iota Cassiopeiae. *M. R. Molnar, A. D. Mallama, A. V. Holm, and D. G. Soskey*. **209**, 146, 89-E2 (1976)
- HR 2727: A Double-Line Binary Containing a Magnetic Ap Star. *Walter K. Bonsack*. **209**, 160, 89-F2 (1976)
- Magnetic Fields and Diffusion Processes in Peculiar A Stars. II. Precession and the Oblique Rotator Model. *Steven N. Shore and Saul J. Adelman*. **209**, 816, 99-E13 (1976)
- Diffusion in Main-Sequence Stars: Radiation Forces, Time Scales, Anomalies. *Georges Michaud, Yves Charland, Sylvie Vauclair, and Gérard Vauclair*. **210**, 447, 108-F10 (1976)
- The Spectrum of the Peculiar A Star HD 25354. *Diane M. Pyper*. **31**, 249, 15-E1 (1976) (Abstr. in **206**, 343, 46-E11)
- Diffusion in Stars: Ionization and Abundance Effects. *Thierry Montmerle and Georges Michaud*. **31**, 489, 19-D1 (1976)

Stars: Peculiar A—Continued

(Abstr. in 206, 966, 56-B1)

- Yttrium, Barium, and the Lanthanides in Ap and Am Stars. *Charles R. Cowley*. **32**, 631, 33-E1 (1976) (Abstr. in **210**, 621, 110-E14)

Stars: Population II

- Metal-rich Globular Clusters in the Galaxy. III. The "X-Ray" Globular Cluster NGC 6441. *James E. Hesser and F. D. A. Hartwick*. **203**, 97, 2-A1 (1976)
- Metal-rich Globular Clusters in the Galaxy. IV. A Color-Magnitude Diagram for NGC 6304. *James E. Hesser and F. D. A. Hartwick*. **203**, L13, 2-B10 (1976)
- The Evolutionary Status of Population II Cepheids. *Robert A. Gingold*. **204**, 116, 14-C10 (1976)
- The Chemical Composition of Two Subgiant CH Stars. *Christopher Sneden and Howard E. Bond*. **204**, 810, 24-G7 (1976)
- Enhanced Abundances of Nitrogen and s-Process Elements in Red Giant Stars in Omega Centauri. *R. J. Dickens and R. A. Bell*. **207**, 506, 64-F14 (1976)

Stars: Pre-Main-Sequence

- Emission Line Spectra of Individual Condensations of Herbig-Haro Objects. *K.-H. Böhm, W. A. Siegmund, and R. D. Schwartz*. **203**, 399, 6-B13 (1976)
- A Polarization Survey of Stars near the Orion Nebula. *Michel Breger*. **204**, 789, 24-E12 (1976)
- The Unusual H₂O Maser Source near Herbig-Haro Object Number 11. *K. Y. Lo, M. Morris, J. M. Moran, and A. D. Haschick*. **204**, L21, 17-B8 (1976)
- BM Orionis: The Enigmatic Eclipsing Binary in the Trapezium. *Daniel M. Popper and Miroslav Plavec*. **205**, 462, 34-E12 (1976)
- Brackett- α Emission in the Becklin-Neugebauer Object. *G. L. Grasdalen*. **205**, L83, 37-B13 (1976)
- H₂O Maser Emission Associated with T Tauri and Other Regions of Star Formation. *G. R. Knapp and Mark Morris*. **206**, 713, 53-D2 (1976)
- Atomic Nitrogen as a Probe of Physical Conditions in the Interstellar Medium. *M. A. Dopita, D. J. Mason, and W. D. Robb*. **207**, 102, 59-B2 (1976)
- Comments on the Optical Counterpart of the X-Ray Source 3U 0352+30. *Thomas J. Moffett and Thomas G. Barnes III*. **207**, L185, 72-D7 (1976)
- Infrared Observations and the Structure of the Lower Main Sequence. *J. R. Mould and A. R. Hyland*. **208**, 399, 79-C4 (1976)
- Colliding Clouds and Star Formation in NGC 1333. *Robert B. Loren*. **209**, 466, 94-E1 (1976)
- Photometric Variations of T Tauri Stars. *Pui Kuan*. **210**, 129, 104-D11 (1976)
- Spectrophotometric Studies of Young Stars. I. The Cepheus IV Association. *Martin Cohen and Leonard V. Kuhi*. **210**, 365, 107-G8 (1976)
- An Infall Model for the T Tauri Phenomenon. *Roger K. Ulrich*. **210**, 377, 108-A6 (1976)
- Comments on the Optical Counterpart of the X-Ray Source 3U 0352+30: Erratum. *Thomas J. Moffett and Thomas G. Barnes III*. **210**, L115, 111-F3 (1976) (Orig. paper in **207**, L185, 72-D7)
- The Nature of the Objects of Joy: A Study of the T Tauri Phenomenon. *A. E. Rydgren, S. E. Strom, and K. M. Strom*. **30**, 307, 6-A1 (1976) (Abstr. in **204**, 312, 16-D9)

Stars: Proper-Motion

- Stellar Population Samples at the Galactic Poles. IV. Luminosity Function for the M-Type Dwarfs at the South Pole. *O. J. Eggen*. **204**, 101, 14-B4 (1976)
- GH7-21: A Possible Degenerate Star with Narrow Hydrogen Lines and Strong Carbon Features. *James Liebert*. **204**, L93, 22-C7 (1976)
- Stellar Population Samples at the Galactic Poles. III. *UBVR* Observations of Proper Motion Stars near the South Pole and the Luminosity Laws for the Halo and Old Disk

Populations. *O. J. Eggen*. **30**, 351, 6-F1 (1976) (Abstr. in **204**, 313, 16-D10)

Stars: Pulsation

- The Three Radial Modes and Evolutionary State of AC Andromedae. *W. S. Fitch and B. Szeidl*. **203**, 616, 9-E8 (1976)
- Evolutionary Problems of Cepheids and Other Giants Investigated with New Radiative Opacities. *T. Richard Carson and Richard Stothers*. **204**, 461, 19-E1 (1976)
- Excitation of Pulsations in the CNO Ionization Zone of Luminous Stars. *Richard Stothers*. **204**, 853, 25-C8 (1976)
- The Light Variation of Delta Scuti. *Alexander Muir and William Wehlau*. **205**, 155, 29-E12 (1976)
- Evidence Favoring Nonevolutionary Cepheid Masses. *Norman Simon and Edward G. Schmidt*. **205**, 162, 29-F5 (1976)
- Timing of Solar Cycles by Rigid Internal Rotations. *Charles L. Wolff*. **205**, 612, 36-B10 (1976)
- High-Speed Photometry of Luminosity-Variable DA Dwarfs: R808, GD 99, and G117-B15A. *John T. McGraw and Edward L. Robinson*. **205**, L155, 42-D2 (1976)
- Observed Pulsations in Dwarf Novae at Maximum. *Paula Szkody*. **207**, 190, 60-A13 (1976)
- The Pulsational Properties of High-Luminosity Degenerate Stars with Hydrogen Burning near the Surface. *Samuel C. Vila and Edward M. Sion*. **207**, 820, 69-D4 (1976)
- Optical Pulsations in HZ Herculis. V. Pulse-resolved Spectrophotometry. *Bruce Margon, Arthur Davidsen, and Stuart Bowyer*. **208**, L35, 77-C7 (1976)
- Wesselink Radii for Classical Cepheids. *Nancy Remage Evans*. **209**, 135, 89-D5 (1976)
- A New Interpretation of Luminous Blue Stars. *Richard Stothers*. **209**, 800, 99-D11 (1976)
- The Pulsational Properties of High-Luminosity Degenerate Stars with Helium Burning near the Surface. *Edward M. Sion and Samuel C. Vila*. **209**, 850, 100-A5 (1976)
- On the Sun's Acoustical Spectrum. *Icko Iben, Jr. and John Mahaffy*. **209**, L39, 92-C11 (1976)
- Relationship between Radial Velocity and Light Variations in HR 7331 and Other Delta Scuti Stars. *Michel Breger, John Hutchins, and Leonard V. Kuhi*. **210**, 163, 104-G3 (1976)
- The Photometric Properties of the Pulsating White Dwarf R548. *Edward L. Robinson, R. Edward Nather, and John T. McGraw*. **210**, 211, 105-C10 (1976)
- Theoretical Models of Beta Cephei Stars Constructed with New Radiative Opacities. *Richard Stothers*. **210**, 434, 108-E9 (1976)
- Metallicism and Pulsation: An Analysis of the Delta Delphini Stars. *Donald W. Kurtz*. **32**, 651, 33-G1 (1976) (Abstr. in **210**, 622, 110-F1)

Stars: R Coronae Borealis

- Interpretation of the Spectral and Photometric Variations of R Coronae Borealis. *Lee Hartmann and John P. Apruzese*. **203**, 610, 9-E2 (1976)
- Spectrophotometry of R Coronae Borealis during the Minimum of 1974. *Robert S. Patterson, John D. Fix, and John S. Neff*. **204**, 838, 25-B7 (1976)

Stars: Rotation

- Determining the Stellar Masses in the Binary System Containing the Pulsar PSR 1913+16: Is the Companion a Helium Main-Sequence Star? *David H. Roberts, A. Ronald Masters, and W. David Arnett*. **203**, 196, 3-B6 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. II. A Saturated Line in 32 Aquarii and in Sirius. *Myron A. Smith*. **203**, 603, 9-D9 (1976)
- Synchronization in Binaries and Age. *Hugo Levato*. **203**, 680, 10-C7 (1976)
- Evolutionary Problems of Cepheids and Other Giants Investigated with New Radiative Opacities. *T. Richard Carson and Richard Stothers*. **204**, 461, 19-E1 (1976)
- The Binary Frequency of IC 4665. *David Crampton, Graham Hill, and W. A. Fisher*. **204**, 502, 20-A1 (1976)

- Excitation of Pulsations in the CNO Ionization Zone of Luminous Stars. *Richard Stothers*. **204**, 853, 25-C8 (1976)
- Variational Analysis of Rotating Neutron Stars. *Marek A. Abramowicz and Robert V. Wagoner*. **204**, 896, 25-F9 (1976)
- Zeeman Observations of the H α Region in BY Draconis. *Christopher M. Anderson, Lee W. Hartmann, and Bernard W. Bopp*. **204**, L51, 17-D9 (1976)
- On the Nature of Sigma Orionis E. *Nolan R. Walborn and James E. Hesser*. **205**, L87, 37-C2 (1976)
- Intrinsic Linear Polarization of Be Stars as a Function of $V \sin i$. *R. Poeckert and J. M. Marlborough*. **206**, 182, 44-G10 (1976)
- Rotating Stellar Models According to the Quasi-dynamic Method. *A. Kovetz, G. Shaviv, and S. Zisman*. **206**, 809, 54-D1 (1976)
- The Bifurcation from the Maclaurin to the Jacobi Sequence as a Second-Order Phase Transition. *G. Bertin and L. A. Radicati*. **206**, 815, 54-D7 (1976)
- Rapidly Rotating, Post-Newtonian Neutron Stars. *Stuart L. Shapiro and Alan P. Lightman*. **207**, 263, 60-G3 (1976)
- The Structure Equations of a Slowly Rotating, Fully Relativistic Solid Star. *H. Quintana*. **207**, 279, 61-A5 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. IV. A Technique for Separating Macroturbulence from Rotation in Solar-Type Stars. *Myron A. Smith*. **208**, 487, 80-C4 (1976)
- Mass-Angular-Momentum Regimes for Certain Instabilities of a Compact, Rotating Stellar Core. *Paul J. Witta and William H. Press*. **208**, 525, 80-F1 (1976)
- The Evolution of Low-Mass Close Binary Systems. I. The Evolutionary Fate of Contact Binaries. *Ronald F. Webbink*. **209**, 829, 99-F12 (1976)
- The Evolution of Rotating Stars. I. Method and Exploratory Calculations for a 7 M_{\odot} Star. *A. S. Endal and S. Sofia*. **210**, 184, 105-A10 (1976)
- Observations of the Transverse Zeeman Effect in the Magnetic Star Beta Coronae Borealis: Evidence for the Oblique Rotator Model. *Ermanno F. Borra and Arthur H. Vaughan*. **210**, L145, 115-C1 (1976)
- Stars: RR Lyrae**
- The Three Radial Modes and Evolutionary State of AC Andromedae. *W. S. Fitch and B. Szeidl*. **203**, 616, 9-E8 (1976)
- The Origin and Evolution of RR Lyrae Stars of High Metal Abundance. *Ronald E. Taam, Robert P. Kraft, and Nicholas Suntzeff*. **207**, 201, 60-B10 (1976)
- The Reticulum System: An Analog to the Draco Dwarf Galaxy near the Large Magellanic Cloud. *Serge Demers and William E. Kunkel*. **208**, 932, 86-C10 (1976)
- The Masses of the Anomalous Cepheids in the Draco System. *Robert Zinn and Leonard Searle*. **209**, 734, 98-G2 (1976)
- Metal Abundances of RR Lyrae Variables in Selected Galactic Star Fields. I. Baade's Window. *Dennis Butler, Duane Carbon, and Robert P. Kraft*. **210**, 120, 104-D1 (1976)
- Stars: RV Tauri**
- Further Observations of the $\lambda 10830$ Helium Line in Stars and Their Significance as a Measure of Stellar Activity. *H. Zirin*. **208**, 414, 79-D7 (1976)
- A Suggestion for the Alternating Amplitudes of RV Tauri Variables. *Robert G. Deupree and Stephen W. Hodson*. **208**, 426, 79-E10 (1976)
- Stars: Semiregular Variables**
- An Analysis of the Variable Radial Velocity of Alpha Cygni. *L. B. Lucy*. **206**, 499, 49-F3 (1976)
- Stars: Short-Period Variables**
- Stars: Spectral Classification**
- Observations of Near-Infrared C2 Bands in the Spectra of Carbon Stars: Erratum. *Daya P. Gilra*. **203**, 770, 11-C8 (1976) (Orig. paper in **199**, 145, 51-E1)
- The OBN and OBC Stars. *Nolan R. Walborn*. **205**, 419, 34-B8 (1976)
- MK Morphology of a Group of Am Stars. *Helmut A. Abt and W. W. Morgan*. **205**, 446, 34-D9 (1976)
- Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIII. The Resonance Lines of Triply Ionized Carbon and Silicon in the Spectra of Hot Stars. *Robert J. Panek and Blair D. Savage*. **206**, 167, 44-F8 (1976)
- MK Morphology of a Group of Am Stars: Addendum. *Helmut A. Abt and W. W. Morgan*. **209**, 961, 101-B12 (1976) (Orig. paper in **205**, 446, 34-D9)
- The Value of R in Monoceros. *David G. Turner*. **210**, 65, 103-F13 (1976)
- Evolved Stars in Open Clusters. *Gretchen L. Harris*. **30**, 451, 8-F1 (1976) (Abstr. in **205**, 309, 31-C11)
- Stars: Spectrum Variables**
- HR 7129: A Helium Variable with a Large Magnetic Field. *Richard J. Wolff and Sidney C. Wolff*. **203**, 171, 2-G5 (1976)
- On the Nature of Sigma Orionis E. *Nolan R. Walborn and James E. Hesser*. **205**, L87, 37-C2 (1976)
- Magnetic Fields and Diffusion Processes in Peculiar A Stars. II. Precession and the Oblique Rotator Model. *Steven N. Shore and Saul J. Adelman*. **209**, 816, 99-E13 (1976)
- Stars: Stellar Dynamics**
- The Effect of Dynamical Friction on the Orbits of the Magellanic Clouds. *Scott D. Tremaine*. **203**, 72, 1-F4 (1976)
- On The Mass of the Halo Population. *L. B. Lucy*. **203**, 75, 1-F7 (1976)
- On Density Waves in Galaxies. II. The Turning-Point Problem at the Corotation Region. *James W-K. Mark*. **203**, 81, 1-F13 (1976)
- The Formation of the Nuclei of Galaxies. II. The Local Group. *Scott D. Tremaine*. **203**, 345, 5-E9 (1976)
- The Masses of Globular Clusters. II. Velocity Dispersions and Mass-to-Light Ratios. *Garth Illingworth*. **204**, 73, 13-F13 (1976)
- A Dynamical Study of NGC 4027. *John H. Christiansen and William H. Jefferys*. **205**, 52, 28-E2 (1976)
- On Density Waves in Galaxies. III. Wave Amplification by Stimulated Emission. *James W-K. Mark*. **205**, 363, 33-E6 (1976)
- Dynamics of Flat Galaxies. II. Biorthonormal Surface Density-Potential Pairs for Finite Disks. *Agris J. Kalnajs*. **205**, 745, 38-G11 (1976)
- Dynamics of Flat Galaxies. III. Equilibrium Models. *Agris J. Kalnajs*. **205**, 751, 39-A3 (1976)
- On the Nonexpansion of the Galaxy. *Michael W. Ovenden and John Byl*. **206**, 57, 43-E4 (1976)
- The Structure and Mass Function of the Globular Cluster M3. *G. S. Da Costa and K. C. Freeman*. **206**, 128, 44-C9 (1976)
- On Density Waves in Galaxies. IV. Wave Amplification through Processes that Remove Angular Momentum from Galactic Disks. *James W-K. Mark*. **206**, 418, 48-G1 (1976)
- An Approximate Dynamical Model for Spheroidal Stellar Systems. *Maria Teresa Ruiz and M. Schwarzschild*. **207**, 376, 63-C11 (1976)
- A Dynamical Model for the Central Region of M31. *Maria Teresa Ruiz*. **207**, 382, 63-D3 (1976)
- Predominance of Two-armed Spirals. *R. H. Miller*. **207**, 408, 63-F2 (1976)
- Motions of the Stars and the Excited Gas in the Barred Spiral Galaxy NGC 3351. *Charles J. Peterson, Vera C. Rubin, W. Kent Ford, Jr., and Norbert Thonnard*. **208**, 662, 83-C3 (1976)
- Evidence for a Central Massive Object in the X-Ray Cluster M15. *Barry Newell, G. S. Da Costa, and John Norris*. **208**, L55, 82-A10 (1976)
- Radio Trails in the Slingshot Theory. *Mauri Valtonen*. **209**, 35, 88-C12 (1976)
- Star Distribution around a Massive Black Hole in a Globular Cluster. *J. N. Bahcall and R. A. Wolf*. **209**, 214, 90-C1 (1976)
- Acceleration of Pulsars by Asymmetric Radiation. II. Theoretical Generalizations and Discussions. *Eugene*

Stars: Stellar Dynamics—Continued

- Tadamaru*. **209**, 245, 90-E7 (1976)
- Tidal Disruption of Clusters. *Edgar Knobloch*. **209**, 411, 94-A2 (1976)
- Why Globular Clusters Are So Spherical. *Stuart L. Shapiro and Alan B. Marchant*. **210**, 757, 113-D9 (1976)
- The Masses of Globular Clusters. I. Surface Brightness Distributions and Star Counts. *Garth Illingworth and Wendy Illingworth*. **30**, 227, 5-A2 (1976) (Abstr. in **204**, 312, 16-D9)
- Identification of Novel Molecules in the Spectrum of 19 Piscium. *Robert S. Wojslaw and Benjamin F. Peery, Jr.* **31**, 75, 12-B1 (1976) (Abstr. in **205**, 656, 36-E11)

Stars: Stellar Statistics

- Effects of Main-Sequence Brightening on the Luminosity Evolution of Elliptical Galaxies. *Beatrice M. Tinsley*. **203**, 63, 1-E9 (1976)
- On The Mass of the Halo Population. *L. B. Lucy*. **203**, 75, 1-F7 (1976)
- Stellar Population Samples at the Galactic Poles. IV. Luminosity Function for the M-Type Dwarfs at the South Pole. *O. J. Eggen*. **204**, 101, 14-B4 (1976)
- Gaps in the Blue Horizontal Branch. *Barry Newell and J. A. Graham*. **204**, 804, 24-G1 (1976)
- On the Number of Planetary Nebulae in our Galaxy. *D. Alloin, C. Cruz-González, and M. Peimbert*. **205**, 74, 28-G1 (1976)
- Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources. *Patrick Henry, Stuart Bowyer, Michael Lampton, Francesco Paresce, and Raymond Cruddace*. **205**, 426, 34-C3 (1976)
- The Frequency of Peculiar A and Metallic-Line Stars in Open Clusters. *Mark R. Hartoog*. **205**, 807, 39-E6 (1976)
- On Schmidt's V_m Estimator and Other Estimators of Luminosity Functions. *James E. Felten*. **207**, 700, 68-B5 (1976)
- Chemical Evolution in the Solar Neighborhood. II. Statistical Constraints, Finite Stellar Lifetimes, and Inhomogeneities. *Beatrice M. Tinsley*. **208**, 797, 84-G9 (1976)
- Detection of an Extreme-Ultraviolet Source in the Southern Sky. *Patrick Henry, Stuart Bowyer, C. G. Rapley, and J. L. Culhane*. **209**, L29, 92-C2 (1976)
- On the Multiplicity of Solar-Type Stars. *David Branch*. **210**, 392, 108-B7 (1976)
- The Birthrate of Planetary Nebulae. *J. H. Cahn and S. P. Wyatt*. **210**, 508, 109-D3 (1976)
- The Masses of Globular Clusters. I. Surface Brightness Distributions and Star Counts. *Garth Illingworth and Wendy Illingworth*. **30**, 227, 5-A2 (1976) (Abstr. in **204**, 312, 16-D9)
- Stellar Population Samples at the Galactic Poles. III. *UBVR* Observations of Proper Motion Stars near the South Pole and the Luminosity Laws for the Halo and Old Disk Populations. *O. J. Eggen*. **30**, 351, 6-F1 (1976) (Abstr. in **204**, 313, 16-D10)
- Observations of Southern Emission-Line Stars. *Karl G. Henize*. **30**, 491, 9-B1 (1976) (Abstr. in **205**, 310, 31-C12)

Stars: S-Type**Stars: Subdwarfs**

- Space Velocity of the Nearby Subdwarf M Star AC +54°1646–56. *Philip A. Ianna and Roger B. Culver*. **203**, L137, 11-F4 (1976)
- A Binary Hypothesis for the Subdwarf B Stars. *John G. Mengel, John Norris, and Peter G. Gross*. **204**, 488, 19-G1 (1976)
- The Temperature, Luminosity, and Spectrum of Kapteyn's Star. *Robert F. Wing, Charles A. Dean, and Darrell J. MacConnell*. **205**, 186, 30-A2 (1976)
- Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources. *Patrick Henry, Stuart Bowyer, Michael Lampton,*

Francesco Paresce, and Raymond Cruddace. **205**, 426, 34-C3 (1976)

- M Dwarfs: Band Strengths in Halo and Disk Populations. *J. R. Mould*. **207**, 535, 65-B4 (1976)
- Some Further Degenerate Stars. IX. *Jesse L. Greenstein*. **207**, L119, 67-D8 (1976)
- Infrared Observations and the Structure of the Lower Main Sequence. *J. R. Mould and A. R. Hyland*. **208**, 399, 79-C4 (1976)
- Subdwarfs among the Old Disk Population. *F. D. A. Hartwick, D. Crampton, and A. P. Cowley*. **208**, 776, 84-F2 (1976)
- The Astrometric Binary μ Cassiopeiae: Photographically Almost Resolved. *Walter A. Feibelman*. **209**, 497, 94-G1 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. *Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer*. **209**, 525, 95-B4 (1976)
- Detection of an Extreme-Ultraviolet Source in the Southern Sky. *Patrick Henry, Stuart Bowyer, C. G. Rapley, and J. L. Culhane*. **209**, L29, 92-C2 (1976)
- The Composition of Kapteyn's Star and the M Subdwarfs. *J. R. Mould*. **210**, 402, 108-C5 (1976)

Stars: Supergiants

- (R-I) Colors of Cepheids and Yellow Supergiants in Open Clusters. *Edward G. Schmidt*. **203**, 466, 7-A5 (1976)
- Stellar Evolution at High Mass with Semiconvective Mixing According to the Schwarzschild Criterion. *Richard Stothers and Chao-wen Chin*. **204**, 472, 19-E12 (1976)
- Copernicus Observations of Betelgeuse and Antares. *A. P. Bernat and D. L. Lambert*. **204**, 830, 25-A13 (1976)
- Mass Loss in Red Giants and Supergiants. *Fred Sanner*. **204**, L41, 17-D1 (1976)
- Copernicus Ultraviolet Spectra of OB Supergiants with Strong Stellar Winds. *J. B. Hutchings*. **204**, L99, 22-C13 (1976)
- The Luminosity of the Very Red Supergiant near the Cluster TR 27. *Catherine L. Imhoff and Philip C. Keenan*. **205**, 455, 34-E6 (1976)
- Late-Type Giants and Supergiants in the Galactic Center. *G. Neugebauer, E. E. Becklin, S. Beckwith, K. Matthews, and C. G. Wynn-Williams*. **205**, L139, 42-C3 (1976)
- Noncircular Motions in the Perseus Spiral Arm. *Roberta M. Humphreys*. **206**, 114, 44-B6 (1976)
- A Binary Model for the Infrared Source HD 101584. *Roberta M. Humphreys*. **206**, 122, 44-C1 (1976)
- Spectra and Fabry-Perot Interferometry of AG Carinae and the Nebula. *Hugh M. Johnson*. **206**, 469, 49-C12 (1976)
- Digital Image Reconstruction Applied to Alpha Orionis. *C. R. Lynds, S. P. Worden, and J. W. Harvey*. **207**, 174, 59-G9 (1976)
- The Two Optical Candidates of LMC X-2. *M. Pakull and N. V. Vidal*. **207**, 329, 61-E1 (1976)
- IRC +10 420: A Hot Supergiant Maser. *P. T. Giguere, N. J. Woolf, and J. C. Webber*. **207**, L195, 72-E3 (1976)
- The Behavior of the Mg II Doublet Features near 2800 Å Observed in F, A, and B Supergiants. *Y. Kondo, T. H. Morgan, and J. L. Modisette*. **209**, 489, 94-F6 (1976)
- A New Interpretation of Luminous Blue Stars. *Richard Stothers*. **209**, 800, 99-D11 (1976)
- The $^{12}\text{C}/^{13}\text{C}$ Ratio in Stellar Atmospheres. VII. 38 Giants and Supergiants. *J. Tomkin, R. E. Luck, and D. L. Lambert*. **210**, 694, 112-G1 (1976)
- Mass Loss in Red Giants and Supergiants. *Fred Sanner*. **32**, 115, 23-D1 (1976) (Abstr. in **208**, 272, 76-G10)

Stars: Supernovae

- Consistency of Cosmic-Ray Composition, Acceleration Mechanism and Supernova Models. *Kem L. Hainebach, Eric B. Norman, and David N. Schramm*. **203**, 245, 3-F1 (1976)
- Statistics of Extragalactic Supernovae. *José Maza and Sidney van den Bergh*. **204**, 519, 20-B4 (1976)

- Magnetohydrodynamic Phenomena in Collapsing Stellar Cores. *David L. Meier, Richard I. Epstein, W. David Arnett, and David N. Schramm.* **204**, 869, 25-D10 (1976)
- The Complex Outer Shell of Eta Carinae. *Nolan R. Walborn.* **204**, L17, 17-B2 (1976)
- Expected Rate of Transient Events from Stellar Deaths in Other Galaxies. *Raymond J. Talbot, Jr.* **205**, 535, 35-D2 (1976)
- Synthesis of the Light Elements in Supernovae (Abstract of 1976 May Suppl.). *Richard I. Epstein, W. David Arnett, and David N. Schramm.* **205**, 657, 36-E12 (1976)
- The Luminosity Distribution and Total Space Density of Pulsars. *D. H. Roberts.* **205**, L29, 32-B14 (1976)
- Stellar Neutrino Pair Emission from De-excitation of Nuclear State via Weak Neutral Currents. *J. P. Crawford, C. J. Hansen, and K. T. Mahanthappa.* **206**, 208, 45-B8 (1976)
- On the Limiting Mass of Carbon-Oxygen White Dwarfs. *John M. Scalo.* **206**, 215, 45-C1 (1976)
- Observations of Supernovae: 1975a in NGC 2207 and 1975b in the Perseus Cluster. *Robert P. Kirshner, H. C. Arp, and J. R. Dunlap.* **207**, 44, 58-D9 (1976)
- Type I Supernovae. II. The Spectrum of SN 1972e in NGC 5253, 250 Days after the Explosion. *Charlotte Gordon.* **207**, 860, 69-G2 (1976)
- The Hydrodynamics of Type II Supernovae. *Roger A. Chevalier.* **207**, 872, 70-A2 (1976)
- X-Ray Evidence for the Supernova Origin of the North Polar Spur. *R. G. Cruddace, H. Friedman, G. Fritz, and S. Shulman.* **207**, 888, 70-B6 (1976)
- Pauli Constriction of the Low-Energy Window in Neutrino Supernova Models. *T. J. Mazurek.* **207**, L87, 67-B4 (1976)
- Cassiopeia A, Faint Supernovae, and Heavy-Element Ejection by Supernovae. *Roger A. Chevalier.* **208**, 826, 85-B10 (1976)
- Neutrino-Neutrino Scattering and Supernovae. *Elliott G. Flowers and Peter G. Sutherland.* **208**, L19, 77-B7 (1976)
- A Single-Star Interpretation of Nova Cygni 1975. *S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. M. Van Horn.* **208**, L23, 77-B10 (1976)
- The Origin of OB Associations and Extended Regions of High-Energy Activity in the Galaxy through Supernova Cascade Processes. *Hakki B. Ögelman and Stephen P. Maran.* **209**, 124, 89-C6 (1976)
- Type I Supernovae as Cosmological Clocks. *G. de Vaucouleurs and W. D. Pence.* **209**, 687, 98-C11 (1976)
- A Possible Alternative to the *r*-Process. *J. B. Blake and D. N. Schramm.* **209**, 846, 100-A1 (1976)
- Pulsar Average Wave Forms and Hollow-Cone Beam Models. *D. C. Backer.* **209**, 895, 100-D11 (1976)
- Supernovae in Binary Systems: Erratum. *J. C. Wheeler, M. Lecar, and C. F. McKee.* **209**, 961, 101-B12 (1976) (Orig. paper in **200**, 145, 64-E1)
- Effects of Neutrino Degeneracy in Supernovae Models. *D. Q. Lamb and C. J. Pethick.* **209**, L77, 96-G8 (1976)
- Supernovae in Binaries, and the Possible Collapsed Nature of the Companion of HD 108. *Jacob D. Bekenstein.* **210**, 544, 109-F12 (1976)
- Some Comparisons of Theoretical Supernova Light Curves with Supernova 1969f (Type II) in NGC 1058. *W. David Arnett and Sydney W. Falk.* **210**, 733, 113-B13 (1976)
- Synthesis of the Light Elements in Supernovae. *Richard I. Epstein, W. David Arnett, and David N. Schramm.* **31**, 111, 12-F1 (1976) (Abstr. in **205**, 657, 36-E12)
- The Structure of Supernova Shock Waves. *Thomas A. Weaver.* **32**, 233, 26-A1 (1976) (Abstr. in **208**, 956, 86-E5)
- Stars: U Geminorum**
- The Masses of Cataclysmic Variables. *Edward L. Robinson.* **203**, 485, 7-B13 (1976)
- T Aurigae, EX Hydrae, U Geminorum: Additional Times of Minima. *G. S. Mumford.* **210**, 416, 108-D5 (1976)
- Detection of Soft X-Ray Emission from an Unidentified Source at High Galactic Latitude. *D. R. Hearn, J. A. Richardson, and G. W. Clark.* **210**, L23, 106-C6 (1976)
- Stars: Variables**
- Optical Identification of A0620-00. *F. Boley, R. Wolfson, H. Bradt, R. Doxsey, G. Jernigan, and W. A. Hiltner.* **203**, L13, 4-D2 (1976)
- Precession of the Nodes in Some Triple Stellar Systems. *Tsevi Mazeh and Jacob Shaham.* **205**, L147, 42-C9 (1976)
- High-Speed Photometry of Luminosity-Variable DA Dwarfs: R808, GD 99, and G117-B15A. *John T. McGraw and Edward L. Robinson.* **205**, L155, 42-D2 (1976)
- The Photometric and Spectrographic Histories of HD 245770 ? A0535+26: The Transient X-Ray Source. *Mark Stier and William Liller.* **206**, 257, 45-F3 (1976)
- Observations of Variable White Dwarfs: One New Variable and 35 Nonvariables. *Edward L. Robinson and John T. McGraw.* **207**, L37, 62-D5 (1976)
- Preliminary Photometry of the X-Ray Globular Cluster NGC 6624. *M. H. Liller and W. Liller.* **207**, L109, 67-C11 (1976)
- High-Frequency Stellar Oscillations. XI. The ZZ Ceti Star BPM 30551. *James E. Hesser, Barry M. Lasker, and Hermann E. Neupert.* **209**, 853, 100-A8 (1976)
- Photometric Variations of T Tauri Stars. *Pui Kuan.* **210**, 129, 104-D11 (1976)
- The Detection of Radio Emission from the RS CVn Binary HR 1099. *Frazer N. Owen, T. W. Jones, and D. M. Gibson.* **210**, L27, 106-C10 (1976)
- BPM 31594: A New Southern-Hemisphere Variable White Dwarf. *John T. McGraw.* **210**, L35, 106-D4 (1976)
- Stars: Visual Multiples**
- The Spectroscopic Binary Orbit in the Triple Star ADS 14893. *Frederick R. West.* **205**, 194, 30-A13 (1976)
- Orbits of Sixteen Visual Binaries. *W. D. Heintz.* **208**, 474, 80-B1 (1976)
- The Astrometric Binary μ Cassiopeiae: Photographically Almost Resolved. *Walter A. Feibelman.* **209**, 497, 94-G1 (1976)
- Stars: Weak-Line**
- Constraints on Nucleosynthesis Imposed by Extremely Metal-poor Stars. *Ruth C. Peterson.* **206**, 800, 54-C6 (1976)
- Stars: White Dwarfs**
- The Masses of Cataclysmic Variables. *Edward L. Robinson.* **203**, 485, 7-B13 (1976)
- On the Maximum Gravitational Redshift of White Dwarfs. *Stuart L. Shapiro and Saul A. Teukolsky.* **203**, 697, 10-D10 (1976)
- MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. *D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport.* **203**, L21, 4-D11 (1976)
- An Ultrasoft X-Ray Source in Coma Berenices. *Bruce Margon, Roger Malina, Stuart Bowyer, Ray Cruddace, and Michael Lampton.* **203**, L25, 4-E1 (1976)
- A Possible Magnetic DA White Dwarf. *D. T. Wickramasinghe and M. S. Bessell.* **203**, L39, 4-F1 (1976)
- Discovery of a Nonsolar Extreme-Ultraviolet Source. *Michael Lampton, Bruce Margon, Francesco Paresce, Robert Stern, and Stuart Bowyer.* **203**, L71, 8-C9 (1976)
- An Observation of the Diffuse Soft X-Ray/Extreme-Ultraviolet Background. *Webster Cash, Roger Malina, and Robert Stern.* **204**, L7, 17-A8 (1976)
- GH7-21: A Possible Degenerate Star with Narrow Hydrogen Lines and Strong Carbon Features. *James Liebert.* **204**, L93, 22-C7 (1976)
- Detection of a He I 4517 Å Absorption Feature in the DB White Dwarf GD 190. *James Liebert, E. A. Beaver, J. W. Robertson, and P. A. Strittmatter.* **204**, L119, 27-A10 (1976)
- An Improved Spectroscopic Orbit for the White Dwarf Eclipsing Binary BD +16°516. *Arthur Young.* **205**, 182, 29-G11 (1976)
- Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources.

Stars: White Dwarfs—Continued

- Patrick Henry, Stuart Bowyer, Michael Lampton, Francesco Paresce, and Raymond Cruddace. **205**, 426, 34-C3 (1976)
- High-Speed Photometry of Luminosity-Variable DA Dwarfs: R808, GD 99, and G117-B15A. John T. McGraw and Edward L. Robinson. **205**, L155, 42-D2 (1976)
- Changing Gravitational Constant and White Dwarfs. Samuel C. Vila. **206**, 213, 45-B13 (1976)
- On the Limiting Mass of Carbon-Oxygen White Dwarfs. John M. Scalo. **206**, 215, 45-C1 (1976)
- Transport Properties of Dense Matter. Elliott Flowers and Naoki Itoh. **206**, 281, 45-C4 (1976)
- Sirius B: A Thermal Soft X-Ray Source? H. L. Shipman. **206**, L67, 47-F1 (1976)
- Skylab Ultraviolet Stellar Spectra: A New White Dwarf, HD 149499 B. S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and M. Laget. **206**, L71, 47-F4 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- On the White Dwarf HZ 43 as an Extreme-Ultraviolet Source. Richard H. Durisen, M. P. Savedoff, and H. M. Van Horn. **206**, L149, 56-E4 (1976)
- On the Origin of Continuum Polarization in White Dwarfs. W. H. Ingham, K. Brecher, and I. Wasserman. **207**, 518, 65-A1 (1976)
- Observations of Variable White Dwarfs: One New Variable and 35 Nonvariables. Edward L. Robinson and John T. McGraw. **207**, L37, 62-D5 (1976)
- The Far-Ultraviolet Spectrum of Sirius B from Copernicus. Malcolm P. Savedoff, H. M. Van Horn, F. Wesemael, L. H. Auer, T. P. Snow, and D. G. York. **207**, L45, 62-D12 (1976)
- Some Further Degenerate Stars. IX. Jesse L. Greenstein. **207**, L119, 67-D8 (1976)
- Flares on White Dwarfs and Gamma-Ray Bursts. D. J. Mullan. **208**, 199, 76-B4 (1976)
- The Broadening of the Calcium Resonance Line in a High-Temperature Helium Atmosphere. R. D. Driver and J. L. Snider. **208**, 518, 80-E7 (1976)
- Mass-Angular-Momentum Regimes for Certain Instabilities of a Compact, Rotating Stellar Core. Paul J. Wiita and William H. Press. **208**, 525, 80-F1 (1976)
- Dynamical Effects of Possible Solid Cores in Neutron Stars and Degenerate Dwarfs. G. Baym, D. Q. Lamb, and F. K. Lamb. **208**, 829, 85-D13 (1976)
- A Single-Star Interpretation of Nova Cygni 1975. S. Starrfield, J. W. Truran, J. S. Gallagher, W. M. Sparks, P. Strittmatter, and H. M. Van Horn. **208**, L23, 77-B10 (1976)
- The Unimportance of Pressure Shifts in the Measurement of Gravitational Redshifts in White Dwarfs. H. L. Shipman and R. G. Mehan. **209**, 205, 90-B6 (1976)
- Are There Spots on Magnetic White Dwarfs? Egidio Landi Degl'Innocenti. **209**, 208, 90-B9 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer. **209**, 525, 95-B4 (1976)
- The Pulsational Properties of High-Luminosity Degenerate Stars with Helium Burning near the Surface. Edward M. Sion and Samuel C. Vila. **209**, 850, 100-A5 (1976)
- High-Frequency Stellar Oscillations. XI. The ZZ Ceti Star BPM 30551. James E. Hesser, Barry M. Lasker, and Hermann E. Neuvert. **209**, 853, 100-A8 (1976)
- H α Polarization and Line Profiles in White Dwarfs with Strong Magnetic Fields. Ermanno F. Borra. **209**, 858, 100-B1 (1976)
- Polarized Radiation in Magnetic White Dwarfs. Leonard A. Rosi, Robert L. Zimmerman, and James C. Kemp. **209**, 868, 100-B11 (1976)
- Detection of an Extreme-Ultraviolet Source in the Southern Sky. Patrick Henry, Stuart Bowyer, C. G. Rapley, and J. L. Culhane. **209**, L29, 92-C2 (1976)
- A Study of the Rise to Maximum and the Decline in Dwarf Novae. Paula Szkody. **210**, 168, 104-G8 (1976)
- The Photometric Properties of the Pulsating White Dwarf R548. Edward L. Robinson, R. Edward Nather, and John T. McGraw. **210**, 211, 105-C10 (1976)
- Degenerate Stars with Helium Atmospheres. Jesse L. Greenstein. **210**, 524, 109-E5 (1976)
- The Temperature and Radius of the White Dwarf Stein 2051B. James Liebert. **210**, 715, 113-A8 (1976)
- BPM 31594: A New Southern-Hemisphere Variable White Dwarf. John T. McGraw. **210**, L35, 106-D4 (1976)
- An Intense Extreme-Ultraviolet Source in Cetus. Bruce Margon, Michael Lampton, Stuart Bowyer, Robert Stern, and Francesco Paresce. **210**, L79, 111-C6 (1976)
- Feige 24: A Very Hot White Dwarf. Albert V. Holm. **210**, L87, 111-D1 (1976)
- Convective White-Dwarf Envelope Model Grids for H-, He-, and C-rich Compositions. G. Fontaine and H. M. Van Horn. **31**, 467, 19-B1 (1976) (Abstr. in **206**, 965, 56-A14)
- Stars: Winds**
- Stellar Winds from Hot Supergiants. J. B. Hutchings. **203**, 438, 6-E'3 (1976)
- Solution of the Comoving-Frame Equation of Transfer in Spherically Symmetric Flows. II. Picket-Fence Models. Dimitri Mihalas, P. B. Kunasz, and D. G. Hummer. **203**, 647, 10-A2 (1976)
- Spherical Winds and Accretion in General Relativity. George R. Blumenthal and William G. Mathews. **203**, 714, 10-F1 (1976)
- The Long-Term Intensity Behavior of Centaurus X-3. E. J. Schreier, K. Swartz, R. Giacconi, G. Fabbiano, and J. Morin. **204**, 539, 20-D2 (1976)
- The Pulsar Equation Including the Inertial Term: Its First Integrals and Its Alfvénic Singularity. Houshang Ardavan. **204**, 889, 25-F2 (1976)
- Copernicus Ultraviolet Spectra of OB Supergiants with Strong Stellar Winds. J. B. Hutchings. **204**, L99, 22-C13 (1976)
- Mass and Angular Momentum Effluxes of Stellar Winds. Tyan Yeh. **206**, 768, 54-A2 (1976)
- Magnetic Acceleration of Winds from Solar-Type Stars. J. W. Belcher and K. B. MacGregor. **210**, 498, 109-C7 (1976)
- Mass Ejection from the O4f Star Zeta Puppis. Henry J. G. L. Lamers and Donald C. Morton. **32**, 715, 34-F1 (1976) (Abstr. in **210**, 624, 110-F3)
- Stars: Wolf-Rayet**
- Radio Emission from the Wolf-Rayet Binary γ^2 Velorum. E. R. Seaquist. **203**, L35, 4-E11 (1976)
- Spectroscopic Studies of O-Type Binaries. I. BD +40°4220: An Enigma Ripe for Resolution. Bruce Bohannon and Peter S. Conti. **204**, 797, 24-F8 (1976)
- Neutral Helium Emission in Wolf-Rayet Envelopes. William R. Oegerle and David Van Blerkom. **206**, L50, 44-E5 (1976)
- Theoretical Wavelength Dependence of Polarization in Early-Type Stars. Bernhard M. Haisch and Joseph P. Cassinelli. **208**, 253, 76-F3 (1976)
- A New Interpretation of Luminous Blue Stars. Richard Stothers. **209**, 800, 99-D11 (1976)
- Infrared Light Variations of Wolf-Rayet Stars. J. A. Hackwell, R. D. Gehrz, J. R. Smith, and D. W. Strecker. **210**, 137, 104-E5 (1976)
- Stars: W Ursae Majoris**
- On the Detectability of Gravitational Waves from W Ursae Majoris Binary Stars. William L. Burke. **203**, 694, 10-D7 (1976)
- W Ursae Majoris Systems with Marginal Contact. L. B. Lucy.

- 205, 208, 30-C5 (1976)
 A Cyclic Thermal Instability in Contact Binary Stars. *Brian P. Flannery*. **205**, 217, 30-D1 (1976)
 The Evolution of Low-Mass Close Binary Systems. II. $1.50 M_{\odot} + 0.75 M_{\odot}$: Evolution into Contact. *Ronald F. Webbink*. **32**, 583, 33-A2 (1976) (Abstr. in **210**, 623, 110-F2)
- Sun: Abundances**
 The Relative Abundance of Neon and Magnesium in the Solar Corona. *H. R. Rugge and A. B. C. Walker, Jr.* **203**, L139, 11-F6 (1976)
 Absolute Oscillator Strengths for Chromium and the Chromium Solar Abundance. *Thomas M. Bieniewski*. **208**, 228, 76-D5 (1976)
 Structure and Spectrum of Quiescent Prominences. II. Hydrogen and Helium Spectra. *J. N. Heasley and R. W. Milkey*. **210**, 827, 114-B10 (1976)
- Sun: Activity**
 Timing of Solar Cycles by Rigid Internal Rotations. *Charles L. Wolff*. **205**, 612, 36-B10 (1976)
 Solar Cycle Evolution of High-Speed Solar Wind Streams. *S. J. Bame, J. R. Asbridge, W. C. Feldman, and J. T. Gosling*. **207**, 977, 71-A11 (1976)
 Absolute Solar Ultraviolet Intensities and Their Variations with Solar Activity. I. The Wavelength Region 1750-2100 Å. *G. E. Brueckner, J. -D. F. Bartoe, O. Kjeldseth Moe, and M. E. VanHoosier*. **209**, 935, 100-G13 (1976)
 Thermodynamic History of a Solar Active Region Observed in X-Rays. *R. G. Teske and E. B. Mayfield*. **210**, L153, 115-C9 (1976)
 A Possible Variation of the Solar Rotation with the Activity Cycle. *Robert Howard*. **210**, L159, 115-D1 (1976)
- Sun: Atmosphere**
 Physical Conditions in Granulation. *R. C. Altrock and S. Musman*. **203**, 533, 7-F10 (1976)
 Solar Limb Brightening in Submillimeter Wavelengths. *C. Lindsey and H. S. Hudson*. **203**, 753, 11-B5 (1976)
 Solar Brightness Temperature Distribution at 350 and 450 Microns. *G. Righini and M. Simon*. **203**, L95, 8-E9 (1976)
 The Mg II *h* and *k* Lines. II. Comparison with Synthesized Profiles and Ca II *K*. *T. R. Ayres and J. L. Linsky*. **205**, 874, 40-D6 (1976)
 The Energy Balance of Granulation. *Steven Musman and George Driver Nelson*. **207**, 981, 71-B1 (1976)
 Excitation and Ionization of Helium in the Solar Atmosphere. *Eugene H. Avrett, Jorge E. Vernazza, and Jeffrey L. Linsky*. **207**, L199, 72-E7 (1976)
 Lyman-Alpha Emission from Nonthermal Proton Beams. *F. Q. Orrall and J. B. Zirker*. **208**, 618, 81-F1 (1976)
 Hydraulic Concentration of Fields in the Solar Photosphere. V. Dynamical Effects in a Stratified Atmosphere. *E. N. Parker*. **210**, 816, 114-A13 (1976)
 Structure of the Solar Chromosphere. II. The Underlying Photosphere and Temperature-Minimum Region. *Jorge E. Vernazza, Eugene H. Avrett, and Rudolf Loeser*. **30**, 1, 1-A2 (1976) (Abstr. in **202**, 844, 99-G14)
- Sun: Atmospheric Motions**
 Physical Conditions in Granulation. *R. C. Altrock and S. Musman*. **203**, 533, 7-F10 (1976)
 Solar Limb Brightening in Submillimeter Wavelengths. *C. Lindsey and H. S. Hudson*. **203**, 753, 11-B5 (1976)
 Solar Magneto-atmospheric Waves. I. An Exact Solution for a Horizontal Magnetic Field. *Alan H. Nye and John H. Thomas*. **204**, 573, 20-F9 (1976)
 Solar Magneto-atmospheric Waves. II. A Model for Running Penumbra Waves. *Alan H. Nye and John H. Thomas*. **204**, 582, 20-G4 (1976)
 Solar Oscillations as a Guide to Solar Structure. *Icko Iben, Jr.* **204**, L147, 27-C11 (1976)
 Observations of Penumbral Waves in the Photosphere. *Steve Musman, Alan H. Nye, and John H. Thomas*. **206**, L175, 56-G1 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. III. Solar Microturbulence and Macroturbulence from Iron Lines. *Myron A. Smith, L. Testerman, and J. C. Evans*. **207**, 308, 61-C6 (1976)
 Preliminary Results from the Orbiting Solar Observatory 8: Transition-Zone Dynamics over a Sunspot. *E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. A. Shine, R. G. Athay, and O. R. White*. **210**, L97, 111-D11 (1976)
 Preliminary Results from the Orbiting Solar Observatory 8: Velocities in the Solar Chromosphere Observed in the Si II $\lambda 1816$ Line. *E. G. Chipman, E. C. Bruner, Jr., R. A. Shine, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White*. **210**, L103, 111-E4 (1976)
 Preliminary Results from the Orbiting Solar Observatory 8: Persistent Velocity Fields in the Chromosphere and Transition Region. *B. W. Lites, E. C. Bruner, Jr., E. G. Chipman, R. A. Shine, G. J. Rottman, O. R. White, and R. G. Athay*. **210**, L111, 111-E12 (1976)
 On the Origin of the 2^{nd} Solar Oscillations. *Simon P. Worden and George W. Simon*. **210**, L163, 115-D4 (1976)
- Sun: Chromosphere**
 Extreme-Ultraviolet Transients Observed at the Solar Pole. *G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza*. **203**, 528, 7-F5 (1976)
 Solar Limb Brightening in Submillimeter Wavelengths. *C. Lindsey and H. S. Hudson*. **203**, 753, 11-B5 (1976)
 Solar Brightness Temperature Distribution at 350 and 450 Microns. *G. Righini and M. Simon*. **203**, L95, 8-E9 (1976)
 The Quiet Sun Chromospheric Network Observed from Skylab. *U. Feldman, G. A. Doschek, and N. P. Patterson*. **209**, 270, 90-G6 (1976)
 Emission Lines in the Wings of Ca II *H* and K. I. Initial Solar Observations and Implications. *Richard C. Canfield and Robert E. Stencel*. **209**, 618, 96-B3 (1976)
 Plasma Diagnostic Techniques in the Ultraviolet: The C III Density-Sensitive Lines in the Sun. *A. K. Dupree, P. V. Foukal, and Carole Jordan*. **209**, 621, 96-B9 (1976)
 Structure and Spectrum of Quiescent Prominences. II. Hydrogen and Helium Spectra. *J. N. Heasley and R. W. Milkey*. **210**, 827, 114-B10 (1976)
 Preliminary Results from the Orbiting Solar Observatory 8: Velocities in the Solar Chromosphere Observed in the Si II $\lambda 1816$ Line. *E. G. Chipman, E. C. Bruner, Jr., R. A. Shine, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White*. **210**, L103, 111-E4 (1976)
 Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. *R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White*. **210**, L107, 111-E8 (1976)
 Preliminary Results from the Orbiting Solar Observatory 8: Persistent Velocity Fields in the Chromosphere and Transition Region. *B. W. Lites, E. C. Bruner, Jr., E. G. Chipman, R. A. Shine, G. J. Rottman, O. R. White, and R. G. Athay*. **210**, L111, 111-E12 (1976)
 The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175-1940 Å. *G. A. Doschek, U. Feldman, M. E. VanHoosier, and J. -D. F. Bartoe*. **31**, 417, 18-E1 (1976) (Abstr. in **206**, 964, 56-A13)
- Sun: Corona**
 The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
 The Solar Spectrum: Wavelengths and Identifications from 160 to 770 Angstroms. *W. E. Behring, L. Cohen, U. Feldman, and G. A. Doschek*. **203**, 527, 7-E11 (1976)
 Solar Magneto-atmospheric Waves. I. An Exact Solution for a Horizontal Magnetic Field. *Alan H. Nye and John H. Thomas*. **204**, 573, 20-F9 (1976)

Sun: Corona—Continued

- Coronal Holes Observed by OSO-7 and Interplanetary Magnetic Sector Structure. *William J. Wagner*. **206**, 583, 50-E5 (1976)
- Dynamical Response of the Solar Corona. I. Basic Formulations. *Y. Nakagawa and Richard S. Steinolfson*. **207**, 296, 61-B8 (1976)
- Dynamical Response of the Solar Corona. II. Numerical Simulations near the Sun. *Richard S. Steinolfson and Yoshinari Nakagawa*. **207**, 300, 61-B12 (1976)
- Solar Cycle Evolution of High-Speed Solar Wind Streams. *S. J. Bame, J. R. Asbridge, W. C. Feldman, and J. T. Gosling*. **207**, 977, 71-A11 (1976)
- Evidence of Outward Flow of Plasma in a Coronal Hole. *G. W. Cushman and W. A. Rense*. **207**, L61, 62-E13 (1976)
- Condensation of Material in Quiescent Prominences. *W. M. Glencross*. **207**, L205, 72-F1 (1976)
- Conditions for "Storage" of Energetic Particles in the Solar Corona. *Donat G. Wentzel*. **208**, 595, 81-D5 (1976)
- Ionization Equilibrium of the Three Highest Stages of Ionization of the Elements Carbon to Argon at High Temperatures. *B. V. Robouch and J. P. Rager*. **208**, 609, 81-E5 (1976)
- Further Changes in the Distribution of Density and Radio Scattering in the Solar Corona in 1973. *J. M. Weisberg, J. M. Rankin, R. R. Payne, and C. C. Counselman III*. **209**, 252, 90-F1 (1976)
- Plasma Diagnostic Techniques in the Ultraviolet: The C III Density-Sensitive Lines in the Sun. *A. K. Dupree, P. V. Foukal, and Carole Jordan*. **209**, 621, 96-B9 (1976)
- Interpretation of Broad Band Polarimetry of Solar Coronal Transients: Importance of H α Emission. *A. I. Poland and R. H. Munro*. **209**, 927, 100-G2 (1976)
- The Pressure and Energy Balance of the Cool Corona Over Sunspots. *Peter V. Foukal*. **210**, 575, 110-B1 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Observations of Optically Thin Lines. *R. A. Shine, D. Roussel-Dupre, E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. G. Athay, and O. R. White*. **210**, L107, 111-E8 (1976)
- The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175–1940 Å. *G. A. Doschek, U. Feldman, M. E. VanHoosier, and J. -D. F. Bartoe*. **31**, 417, 18-E1 (1976) (Abstr. in **206**, 964, 56-A13)
- The Emission-Line Spectrum above the Limb of a Solar Coronal Hole: 1175–1940 Å. *U. Feldman, G. A. Doschek, M. E. VanHoosier, and J. D. Purcell*. **31**, 445, 18-G1 (1976) (Abstr. in **206**, 965, 56-A14)
- Sun: Eclipses**
- Sun: Faculae**
- Sun: Flares**
- The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
- Solar Gamma-Ray Lines as Probes of Accelerated Particle Directionalities in Flares. *Reuven Ramaty and Carol Jo Crannell*. **203**, 766, 11-C4 (1976)
- The Lithium-like $2s^2S-2p^2P$ Transition in Solar Flares. *K. G. Widing and J. D. Purcell*. **204**, L151, 27-D1 (1976)
- The Triggering and Subsequent Development of a Solar Flare. *J. A. Vorpahl*. **205**, 868, 40-C11 (1976)
- High-Temperature Flare Lines in the Solar Spectrum 171–630 Å. *G. D. Sandlin, G. E. Brueckner, V. E. Scherrer, and R. Tousey*. **205**, L47, 32-D4 (1976)
- Thermal X-Rays from Stellar Flares: Reevaluation of Scaling from Solar Flares. *D. J. Mullan*. **207**, 289, 61-B1 (1976)
- Upper Limits to the Quiet-Time Solar Neutron Flux from 10 to 100 MeV. *Shin Moon, George M. Simnett, and R. Stephen White*. **207**, 630, 66-B1 (1976)
- Lyman-Alpha Emission from Nonthermal Proton Beams. *F. Q. Orrall and J. B. Zirker*. **208**, 618, 81-F1 (1976)

- A Direct Measurement of the Charge States of Energetic Iron Emitted by the Sun. *G. Gloeckler, R. K. Sciambi, C. Y. Fan, and D. Hovestadt*. **209**, L93, 97-A9 (1976)
- Time Dispersion of Energetic Solar Particles: Unexpected Velocity and Species Dependence. *J. J. O'Gallagher, D. Hovestadt, B. Klecker, G. Gloeckler, and C. Y. Fan*. **209**, L97, 97-A13 (1976)
- The Effect of Convection and Adiabatic Deceleration on the Time to Maximum Flux in Energetic Solar Particle Events. *M. Scholer*. **209**, L101, 97-B3 (1976)
- Formation of the 0.511 MeV Line in Solar Flares. *Carol Jo Crannell, Glenn Joyce, Reuven Ramaty, and Carl Wertz*. **210**, 582, 110-C2 (1976)
- Mean Colors of Stellar Flare Continuum. *D. J. Mullan*. **210**, 702, 112-G9 (1976)
- Characteristics of Cosmic X-Ray Bursts Observed with the OGO-5 Satellite. *S. R. Kane and K. A. Anderson*. **210**, 875, 114-F6 (1976)
- Magnetic Field Reconnection in the Flare of 18:28 UT 1975 August 10. *Richard C. Canfield and Richard R. Fisher*. **210**, L149, 115-C4 (1976)

Sun: General

- Anomaly in the Quiet-Time Helium Spectrum at 1 MeV per Nucleon. *G. Gloeckler, D. Hovestadt, B. Klecker, O. Vollmer, and C. Y. Fan*. **204**, 920, 26-A6 (1976)

Sun: Granulation

- Physical Conditions in Granulation. *R. C. Alcock and S. Musman*. **203**, 533, 7-F10 (1976)
- Hydraulic Concentration of Magnetic Fields in the Solar Photosphere. III. Fields of One or Two Kilogauss. *E. N. Parker*. **204**, 259, 15-G11 (1976)
- The Energy Balance of Granulation. *Steven Musman and George Driver Nelson*. **207**, 981, 71-B1 (1976)
- Wave Propagation along a Magnetic Tube. *Richard J. Defouw*. **209**, 266, 90-G2 (1976)
- The Quiet Sun Chromospheric Network Observed from Skylab. *U. Feldman, G. A. Doschek, and N. P. Patterson*. **209**, 270, 90-G6 (1976)
- On the Power Spectrum of the Solar Granulation at High Wavenumbers. *Blake F. Kinahan*. **209**, 282, 91-A4 (1976)
- Hydraulic Concentration of Fields in the Solar Photosphere. IV. Evolution of Fields near Equipartition. *E. N. Parker*. **210**, 810, 114-A7 (1976)

Sun: Interior

- Solar Oscillations as a Guide to Solar Structure. *Icko Iben, Jr.* **204**, L147, 27-C11 (1976)
- Nonlinear Convective Motion in Shallow Convective Envelopes. *Robert G. Deupree*. **205**, 286, 31-B2 (1976)
- Solar Models of Low Neutrino Counting Rate: Energy Transport by Processes Other than Radiative Transfer. *Michael J. Newman and William A. Fowler*. **207**, 601, 65-G1 (1976)
- On Magnetic Buoyancy in the Convection Zone. *Wasaburo Unno and Elizabeth Ribes*. **208**, 222, 76-C13 (1976)
- On the Efficient Computation of Sequences of Solar Models. *Michael J. Newman*. **208**, 224, 76-D1 (1976)
- On the Sun's Acoustical Spectrum. *Icko Iben, Jr. and John Mahaffy*. **209**, L39, 92-C11 (1976)

Sun: Limb Darkening

- Solar Limb Brightening in Submillimeter Wavelengths. *C. Lindsey and H. S. Hudson*. **203**, 753, 11-B5 (1976)

Sun: Magnetic Fields

- Hydraulic Concentration of Magnetic Fields in the Solar Photosphere. III. Fields of One or Two Kilogauss. *E. N. Parker*. **204**, 259, 15-G11 (1976)
- Overstability and Cooling in Sunspots. *B. Roberts*. **204**, 268, 16-A6 (1976)
- Solar Magneto-atmospheric Waves. I. An Exact Solution for a Horizontal Magnetic Field. *Alan H. Nye and John H. Thomas*. **204**, 573, 20-F9 (1976)
- Solar Magneto-atmospheric Waves. II. A Model for Running

- Penumbral Waves. *Alan H. Nye and John H. Thomas*. **204**, 582, 20-G4 (1976)
- Condensation of Material in Quiescent Prominences. *W. M. Glencross*. **207**, L205, 72-F1 (1976)
- On Magnetic Buoyancy in the Convection Zone. *Wasaburo Unno and Elizabeth Ribes*. **208**, 222, 76-C13 (1976)
- Wave Propagation along a Magnetic Tube. *Richard J. Defouw*. **209**, 266, 90-G2 (1976)
- Hydraulic Concentration of Fields in the Solar Photosphere. IV. Evolution of Fields near Equipartition. *E. N. Parker*. **210**, 810, 114-A7 (1976)
- Hydraulic Concentration of Fields in the Solar Photosphere. V. Dynamical Effects in a Stratified Atmosphere. *E. N. Parker*. **210**, 816, 114-A13 (1976)
- Magnetic Field Reconnection in the Flare of 18:28 UT 1975 August 10. *Richard C. Canfield and Richard R. Fisher*. **210**, L149, 115-C4 (1976)
- Sun: Plages**
- Absolute Solar Ultraviolet Intensities and Their Variations with Solar Activity. I. The Wavelength Region 1750-2100 Å. *G. E. Brueckner, J. -D. F. Bartoe, O. Kjeldseth Moe, and M. E. VanHoosier*. **209**, 935, 100-G13 (1976)
- Sun: Prominences**
- The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
- Structure and Spectrum of Quiescent Prominences: Energy Balance Spectrum. *J. N. Heasley and Dimitri Mihalas*. **205**, 273, 31-A2 (1976)
- Condensation of Material in Quiescent Prominences. *W. M. Glencross*. **207**, L205, 72-F1 (1976)
- Interpretation of Broad Band Polarimetry of Solar Coronal Transients: Importance of H α Emission. *A. I. Poland and R. H. Munro*. **209**, 927, 100-G2 (1976)
- Structure and Spectrum of Quiescent Prominences. II. Hydrogen and Helium Spectra. *J. N. Heasley and R. W. Milkey*. **210**, 827, 114-B10 (1976)
- Sun: Radio Radiation**
- Synchrotron or Plasma Process Emission in Narrow-Band Type IV_{dm} Bursts? *A. O. Benz and G. L. Tarnstrom*. **204**, 597, 21-A5 (1976)
- Solar Millimetric Bright Sources on the Quiet Sun. *R. Bocchia and F. Poumeyrol*. **204**, L107, 22-D7 (1976)
- Theory of Type IIIb Solar Radio Bursts. *Robert A. Smith and Jérôme de la Noë*. **207**, 605, 65-G5 (1976)
- Three-Dimensional Langmuir Wave Instabilities in Type III Solar Radio Bursts. *S. Bardwell and M. V. Goldman*. **209**, 912, 100-F1 (1976)
- Sun: Rotation**
- On the Constancy Along Cylinders of the Angular Velocity in the Solar Convection Zone. *B. R. Durney*. **204**, 589, 20-G11 (1976)
- Timing of Solar Cycles by Rigid Internal Rotations. *Charles L. Wolff*. **205**, 612, 36-B10 (1976)
- A Possible Variation of the Solar Rotation with the Activity Cycle. *Robert Howard*. **210**, L159, 115-D1 (1976)
- Sun: Solar Wind**
- Interplanetary Stream Magnetism: Kinematic Effects. *L. F. Burlaga and E. Barouch*. **203**, 257, 3-F13 (1976)
- A Two-Region Model of the Solar Wind Including Azimuthal Velocity. *Mario H. Acuna and Y. C. Whang*. **203**, 720, 10-F7 (1976)
- Observations of Helium in the Interplanetary/Interstellar Wind: The Solar Wake Effect: Erratum. *C. S. Weller and R. R. Meier*. **203**, 769, 11-C7 (1976) (Orig. paper in **193**, 471, 68-F13)
- The Interplanetary Acceleration of Energetic Nucleons. *F. B. McDonald, B. J. Teegarden, J. H. Trainor, T. T. von Rosenvinge, and W. R. Webber*. **203**, L149, 11-G2 (1976)
- Solar-Wind Tritium Limit and the Mixing Rate of the Solar Atmosphere. *E. L. Fireman*. **205**, 268, 30-G11 (1976)
- Sun and Comets as Sources in an External Flow. *Max K. Wallis and Murray Dryer*. **205**, 895, 40-F1 (1976)
- The Scattering of Cosmic Rays by Magnetic Bubbles. *R. F. Flewelling and F. V. Coroniti*. **205**, L135, 42-B13 (1976)
- Dynamical Response of the Solar Corona. I. Basic Formulations. *Y. Nakagawa and Richard S. Steinolfson*. **207**, 296, 61-B8 (1976)
- Dynamical Response of the Solar Corona. II. Numerical Simulations near the Sun. *Richard S. Steinolfson and Yoshinari Nakagawa*. **207**, 300, 61-B12 (1976)
- Upper Limits to the Quiet-Time Solar Neutron Flux from 10 to 100 MeV. *Shin Moon, George M. Simnett, and R. Stephen White*. **207**, 630, 66-B1 (1976)
- Solar Cycle Evolution of High-Speed Solar Wind Streams. *S. J. Bame, J. R. Asbridge, W. C. Feldman, and J. T. Gosling*. **207**, 977, 71-A11 (1976)
- Evidence of Outward Flow of Plasma in a Coronal Hole. *G. W. Cushman and W. A. Rense*. **207**, L61, 62-E13 (1976)
- On the Physical Interpretation of the Cosmic-Ray Transport Equations. *J. R. Jokipii and E. N. Parker*. **208**, 220, 76-C11 (1976)
- An Asymptotic Analysis of the Viscous Two-Fluid Solar Wind Equations. *D. Summers*. **208**, 587, 81-C11 (1976)
- Shock Disturbances in a Thermally Conducting Solar Wind. *Philip Rosenau and Shimshon Frankenthal*. **208**, 633, 81-G2 (1976)
- Ion and Electron Pulses Observed in the Magnetotail and Rapid Annihilation of Magnetic Field Lines. *C. Y. Fan, G. Gloeckler, and D. Hovestadt*. **209**, 259, 90-F8 (1976)
- The Effect of Convection and Adiabatic Deceleration on the Time to Maximum Flux in Energetic Solar Particle Events. *M. Scholer*. **209**, L101, 97-B3 (1976)
- Production Rate and Origin of H₂O⁺ in Comet Bennett 1970 II. *A. H. Delsemme and M. R. Combi*. **209**, L153, 102-A1 (1976)
- Measurements of Large-Scale Density Fluctuations in the Solar Wind Using Dual-Frequency Phase Scintillations. *Richard Woo, Fang-Chou Yang, Kabin W. Yip, and William B. Kendall*. **210**, 568, 110-A8 (1976)
- Structure of Density Fluctuations near the Sun Deduced from Pioneer-6 Spectral Broadening Measurements. *Richard Woo, Fang-Chou Yang, and Akira Ishimaru*. **210**, 593, 110-C13 (1976)
- Evidence for Interplanetary Acceleration of Nucleons in Corotating Interaction Regions. *C. W. Barnes and J. A. Simpson*. **210**, L91, 111-D4 (1976)
- Sun: Spectra**
- The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
- The Solar Spectrum: Wavelengths and Identifications from 160 to 770 Angstroms. *W. E. Behring, L. Cohen, U. Feldman, and G. A. Doschek*. **203**, 527, 7-E11 (1976)
- Formation of Spectral Lines with Partial Frequency Redistribution. *J. N. Heasley and F. Kneer*. **203**, 660, 10-B2 (1976)
- The Mg II *h* and *k* Lines. I. Absolute Center and Limb Measurements of the Solar Profiles. *J. L. Kohl and W. H. Parkinson*. **205**, 599, 36-A10 (1976)
- High-Temperature Flare Lines in the Solar Spectrum 171-630 Å. *G. D. Sandlin, G. E. Brueckner, V. E. Scherrer, and R. Tousey*. **205**, L47, 32-D4 (1976)
- Doppler Wavelength Shifts of Transition Zone Lines Measured in Skylab Solar Spectra. *G. A. Doschek, U. Feldman, and J. D. Bohlin*. **205**, L177, 42-E7 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. III. Solar Microturbulence and Macroturbulence from Iron Lines. *Myron A. Smith, L. Testerman, and J. C. Evans*. **207**, 308, 61-C6 (1976)
- Iron Hydride: Laboratory Studies and Solar Identification. *P.*

Sun: Spectra—Continued

- K. Carroll, P. McCormack, and S. O'Connor.* **208**, 903, 86-A4 (1976)
- The Quiet Sun Chromospheric Network Observed from Skylab. *U. Feldman, G. A. Doschek, and N. P. Patterson.* **209**, 270, 90-G6 (1976)
- Emission Lines in the Wings of Ca II H and K. I. Initial Solar Observations and Implications. *Richard C. Canfield and Robert E. Stencel.* **209**, 618, 96-B3 (1976)
- Plasma Diagnostic Techniques in the Ultraviolet: The C III Density-Sensitive Lines in the Sun. *A. K. Dupree, P. V. Foukal, and Carole Jordan.* **209**, 621, 96-B9 (1976)
- Absolute Solar Ultraviolet Intensities and Their Variations with Solar Activity. I. The Wavelength Region 1750-2100 Å. *G. E. Brueckner, J. -D. F. Bartoe, O. Kjeldseth Moe, and M. E. VanHoosier.* **209**, 935, 100-G13 (1976)
- A Direct Measurement of the Charge States of Energetic Iron Emitted by the Sun. *G. Gloeckler, R. K. Sciambi, C. Y. Fan, and D. Hovestadt.* **209**, L93, 97-A9 (1976)
- Time Dispersion of Energetic Solar Particles: Unexpected Velocity and Species Dependence. *J. J. O'Gallagher, D. Hovestadt, B. Klecker, G. Gloeckler, and C. Y. Fan.* **209**, L97, 97-A13 (1976)
- The Emission-Line Spectrum of a Sunspot in the Far-Ultraviolet. *Chung-Chieh Cheng, G. A. Doschek, and U. Feldman.* **210**, 836, 114-C7 (1976)
- Structure of the Solar Chromosphere. II. The Underlying Photosphere and Temperature-Minimum Region. *Jorge E. Vernazza, Eugene H. Avrett, and Rudolf Loeser.* **30**, 1, 1-A2 (1976) (Abstr. in **202**, 844, 99-G14)
- The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175-1940 Å. *G. A. Doschek, U. Feldman, M. E. VanHoosier, and J. -D. F. Bartoe.* **31**, 417, 18-E1 (1976) (Abstr. in **206**, 964, 56-A13)
- The Emission-Line Spectrum above the Limb of a Solar Coronal Hole: 1175-1940 Å. *U. Feldman, G. A. Doschek, M. E. VanHoosier, and J. D. Purcell.* **31**, 445, 18-G1 (1976) (Abstr. in **206**, 965, 56-A14)
- Sun: Spectroheliograms**
- Extreme-Ultraviolet Transients Observed at the Solar Pole. *G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza.* **203**, 528, 7-F5 (1976)
- Physical Conditions in Granulation. *R. C. Altrock and S. Musman.* **203**, 533, 7-F10 (1976)
- Sun: Sunspots**
- The Flux of Alfvén Waves in Sunspots. *Jacques M. Beckers.* **203**, 739, 11-A1 (1976)
- Overstability and Cooling in Sunspots. *B. Roberts.* **204**, 268, 16-A6 (1976)
- Solar Magneto-atmospheric Waves. II. A Model for Running Penumbra Waves. *Alan H. Nye and John H. Thomas.* **204**, 582, 20-G4 (1976)
- Timing of Solar Cycles by Rigid Internal Rotations. *Charles L. Wolff.* **205**, 612, 36-B10 (1976)
- Observations of Penumbra Waves in the Photosphere. *Steve Musman, Alan H. Nye, and John H. Thomas.* **206**, L175, 56-G1 (1976)
- The Pressure and Energy Balance of the Cool Corona Over Sunspots. *Peter V. Foukal.* **210**, 575, 110-B1 (1976)
- The Emission-Line Spectrum of a Sunspot in the Far-Ultraviolet. *Chung-Chieh Cheng, G. A. Doschek, and U. Feldman.* **210**, 836, 114-C7 (1976)
- Preliminary Results from the Orbiting Solar Observatory 8: Transition-Zone Dynamics over a Sunspot. *E. C. Bruner, Jr., E. G. Chipman, B. W. Lites, G. J. Rottman, R. A. Shine, R. G. Athay, and O. R. White.* **210**, L97, 111-D11 (1976)
- Sun: X-Rays**
- The Relative Abundance of Neon and Magnesium in the Solar Corona. *H. R. Rugge and A. B. C. Walker, Jr.* **203**, L139, 11-F6 (1976)
- The Triggering and Subsequent Development of a Solar Flare. *J. A. Vorpahl.* **205**, 868, 40-C11 (1976)
- Thermal X-Rays from Stellar Flares: Reevaluation of Scaling from Solar Flares. *D. J. Mullan.* **207**, 289, 61-B1 (1976)
- Conditions for "Storage" of Energetic Particles in the Solar Corona. *Donat G. Wentzel.* **208**, 595, 81-D5 (1976)
- Formation of the 0.511 MeV Line in Solar Flares. *Carol Jo Crannell, Glenn Joyce, Reuven Ramaty, and Carl Wernitz.* **210**, 582, 110-C2 (1976)
- Thermodynamic History of a Solar Active Region Observed in X-Rays. *R. G. Teske and E. B. Mayfield.* **210**, L153, 115-C9 (1976)
- Symbiotic Stars: see Stars: Combination Spectra**
- Synchrotron Radiation**
- Synchrotron or Plasma Process Emission in Narrow-Band Type IV_m Bursts? *A. O. Benz and G. L. Tarnstrom.* **204**, 597, 21-A5 (1976)
- Optical Polarization Models of Quasi-stellar Objects and BL Lacertae Objects. *Kenneth H. Nordsieck.* **209**, 653, 98-A4 (1976)
- Polarized Radiation in Magnetic White Dwarfs. *Leonard A. Rosi, Robert L. Zimmerman, and James C. Kemp.* **209**, 868, 100-B11 (1976)
- Physics of Compact Radio Sources. I. Particle Acceleration and Flux Variations. *A. G. Pacholczyk and John S. Scott.* **210**, 311, 107-C8 (1976)
- A Continuous Injection Model for the Supernova Remnants Cassiopeia A and the Crab Nebula. *F. W. Peterson.* **210**, 723, 113-B3 (1976)
- The Polarization of BL Lacertae at Visible and Infrared Wavelengths. *R. F. Knacke, R. W. Capps, and M. Johns.* **210**, L69, 111-B8 (1976)
- 3° Cosmic Radiation: see Cosmic Background Radiation**
- Transition Probabilities**
- Investigation of Forbidden Transitions in Argon Ions. *N. W. Jalufka.* **203**, 279, 4-A7 (1976)
- Experimental Oscillator Strengths in the C₂ (A ¹Π_u-X ¹Σ_g⁺) Phillips Band System. *F. Roux, D. Cerny, and J. D'Incan.* **204**, 940, 26-C1 (1976)
- Radiative Association in Dense, H₂-containing Interstellar Clouds. *Eric Herbst.* **205**, 94, 29-A7 (1976)
- Calculation of the Cross Section for C IV-H Charge Exchange: Significance for Interstellar X-Rays/Cosmic-Ray Particles. *R. J. Blint, W. D. Watson, and R. B. Christensen.* **205**, 634, 36-D2 (1976)
- Collisionally Induced Hyperfine-Structure Transitions of OH. *Shih-I. Chu.* **206**, 640, 51-C2 (1976)
- Fine-Structure Excitation of Carbon by Atomic Hydrogen Impact. *Andrew W. Yau and A. Dalgarno.* **206**, 652, 51-D4 (1976)
- Atomic Nitrogen as a Probe of Physical Conditions in the Interstellar Medium. *M. A. Dopita, D. J. Mason, and W. D. Robb.* **207**, 102, 59-B2 (1976)
- Interstellar COH⁺. *Eric Herbst, Joseph M. Norbeck, Phillip R. Certain, and William Klemperer.* **207**, 110, 59-B11 (1976)
- Predissociation Effects in the A, B, and C States of CH and The Interstellar Formation Rate of CH via Inverse Predissociation. *J. Brzozowski, P. Bunker, N. Elander, and P. Erman.* **207**, 414, 63-F8 (1976)
- The Rotation-Vibration Spectrum of HD: Wavelength and Intensity Measurements of the 3-0, 4-0, 5-0, and 6-0 Electric Dipole Bands. *A. R. W. McKellar, W. Goetz, and D. A. Ramsay.* **207**, 663, 66-D6 (1976)
- Energy Levels of Hydrogen in Magnetic Fields of Arbitrary Strength. *A. R. P. Rau and Larry Spruch.* **207**, 671, 66-E1 (1976)
- Absolute Oscillator Strengths for Chromium and the Chromium Solar Abundance. *Thomas M. Bieniewski.* **208**, 228, 76-D5 (1976)
- Laboratory Microwave Spectrum of Cyanamide. *Donald R. Johnson, Richard D. Suenram, and Walter J. Lafferty.* **208**, 245, 76-E9 (1976)

- Electron Impact Excitation Cross Sections for Complex Ions. III. Highly Charged Ions with Three Valence Electrons. *Allen D. Parks and Douglas H. Sampson*. **209**, 312, 91-C6 (1976)
- Oscillator Strengths in the Mg Isoelectronic Sequence. *G. A. Victor, R. F. Stewart, and C. Laughlin*. **31**, 237, 15-D1 (1976) (Abstr. in **206**, 343, 46-E11)
- T Tauri Stars: see Stars: Pre-Main-Sequence**
- Turbulence**
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. II. A Saturated Line in 32 Aquarii and in Sirius. *Myron A. Smith*. **203**, 603, 9-D9 (1976)
- A Nonlinear Theory of Cosmic-Ray Pitch-Angle Diffusion in Homogeneous Magnetostatic Turbulence. *Melvyn L. Goldstein*. **204**, 900, 25-F13 (1976)
- Cosmological Turbulence Reexamined. *A. M. Anile, L. Danese, G. De Zotti, and S. Motta*. **205**, L59, 37-A6 (1976)
- Relativistic Plasma Turbulence and its Application to Pulsar Phenomena. *Satoshi Hinata*. **206**, 282, 46-A4 (1976)
- An Analysis of the Variable Radial Velocity of Alpha Cygni. *L. B. Lucy*. **206**, 499, 49-F3 (1976)
- The Role of Turbulent Pressure in Mixing-Length Convection. *R. F. Stellingwerf*. **206**, 543, 50-B5 (1976)
- Comments on the Diffusion Model of Turbulent Mixing. *Lawrence D. Cloutman and John G. Eoll*. **206**, 548, 50-B10 (1976)
- Strong Scintillations in Astrophysics. IV. Cross-Correlation between Different Frequencies and Finite Bandwidth Effects. *L. C. Lee*. **206**, 744, 53-F6 (1976)
- Turbulence in Tidally Distorted Stars. *Fredrick Hampton Seguin*. **207**, 848, 69-F4 (1976)
- Applications of Fourier Analysis to Broadening of Stellar Line Profiles. IV. A Technique for Separating Macroturbulence from Rotation in Solar-Type Stars. *Myron A. Smith*. **208**, 487, 80-C4 (1976)
- Magnetohydrodynamic Turbulence in Disk Plasmas and Magnetic Field Fluctuations in the Galaxy. *Setsuo Ichimaru*. **208**, 701, 83-G1 (1976)
- Measurements of Large-Scale Density Fluctuations in the Solar Wind Using Dual-Frequency Phase Scintillations. *Richard Woo, Fang-Chou Yang, Kabing W. Yip, and William B. Kendall*. **210**, 568, 110-A8 (1976)
- Structure of Density Fluctuations near the Sun Deduced from Pioneer-6 Spectral Broadening Measurements. *Richard Woo, Fang-Chou Yang, and Akira Ishimaru*. **210**, 593, 110-C13 (1976)
- Ultraviolet: General**
- P Cygni Profiles in Zeta Ophiuchi and Zeta Puppis. *Donald C. Morton*. **203**, 386, 6-A10 (1976)
- Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXI. Absolute Energy Distribution of Stars in the Ultraviolet. *R. C. Bless, A. D. Code, and E. T. Fairchild*. **203**, 410, 6-C10 (1976)
- Empirical Effective Temperatures and Bolometric Corrections for Early-Type Stars. *A. D. Code, J. Davis, R. C. Bless, and R. Hanbury Brown*. **203**, 417, 6-D4 (1976)
- Photoelectric Heating of the Interstellar Gas. *M. Jura*. **204**, 12, 13-B5 (1976)
- On the White Dwarf HZ 43 as an Extreme-Ultraviolet Source. *Richard H. Durisen, M. P. Savedoff, and H. M. Van Horn*. **206**, L149, 56-E4 (1976)
- Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIV. The Beta Cephei Stars Delta Ceti and Gamma Pegasi. *Janet Rountree Lesh*. **208**, 135, 75-D9 (1976)
- The Ultraviolet Variations of Iota Cassiopeiae. *M. R. Molnar, A. D. Mallama, A. V. Holm, and D. G. Soskey*. **209**, 146, 89-E2 (1976)
- Interpretation of Broad Band Polarimetry of Solar Coronal Transients: Importance of H α Emission. *A. I. Poland and R. H. Munro*. **209**, 927, 100-G2 (1976)
- Feige 24: A Very Hot White Dwarf. *Albert V. Holm*. **210**, L87, 111-D1 (1976)
- The Galactic Distribution of Interstellar Absorption as Determined from the *Celelescope* Catalog of Ultraviolet Stellar Observations and a New Catalog of *UBV*, H-Beta Photoelectric Observations. *William A. Deutschman, Robert J. Davis, and Rudolph E. Schild*. **30**, 97, 3-A2 (1976) (Abstr. in **203**, 284, 4-A12)
- Ultraviolet: Spectra**
- Skylab* Ultraviolet Stellar Spectra: Cool Stars with Hot Secondaries. *S. B. Parsons, J. D. Wray, Y. Kondo, K. G. Henize, and G. F. Benedict*. **203**, 435, 6-E9 (1976)
- The Solar XUV Spectrum of He II. *J. L. Linsky, D. L. Glackin, R. D. Chapman, W. M. Neupert, and R. J. Thomas*. **203**, 509, 7-D12 (1976)
- The Solar Spectrum: Wavelengths and Identifications from 160 to 770 Angstroms. *W. E. Behring, L. Cohen, U. Feldman, and G. A. Doschek*. **203**, 527, 7-E11 (1976)
- Extreme-Ultraviolet Transients Observed at the Solar Pole. *G. L. Withbroe, D. T. Jaffe, P. V. Foukal, M. C. E. Huber, R. W. Noyes, E. M. Reeves, E. J. Schmahl, J. G. Timothy, and J. E. Vernazza*. **203**, 528, 7-F5 (1976)
- An Analysis of the Interstellar Material in the Line of Sight Toward Omicron Persei. *Theodore P. Snow, Jr.*. **204**, 759, 24-C11 (1976)
- Copernicus* Observations of Betelgeuse and Antares. *A. P. Bernat and D. L. Lambert*. **204**, 830, 25-A13 (1976)
- Far-Ultraviolet Brightness of Nebulae in Cygnus. *George R. Carruthers and Thorton Page*. **205**, 397, 33-G12 (1976)
- Limits on the Space Density of O Subdwarfs and Hot White Dwarfs from a Search for Extreme-Ultraviolet Sources. *Patrick Henry, Stuart Bowyer, Michael Lampton, Francesco Paresce, and Raymond Cruddace*. **205**, 426, 34-C3 (1976)
- The Mg II *h* and *k* Lines. I. Absolute Center and Limb Measurements of the Solar Profiles. *J. L. Kohl and W. H. Parkinson*. **205**, 599, 36-A10 (1976)
- The Far-Ultraviolet (1180-1950 Å) Emission Spectrum of Arcturus. *W. R. McKinney, H. W. Moos, and J. W. Giles*. **205**, 848, 40-B5 (1976)
- Spectroscopic Survey of the Far Ultraviolet (1160-1700 Å) Emissions of Capella. *R. C. Vitz, H. Weiser, H. W. Moos, A. Weinstein, and E. S. Warden*. **205**, L35, 32-C6 (1976)
- Properties of the Chromosphere-Corona Transition Region in Capella. *Bernhard M. Haisch and Jeffrey L. Linsky*. **205**, L39, 32-C10 (1976)
- Possible Mg II Emission in B Stars Observed from *Copernicus*. *Yoji Kondo, Jerry L. Modisette, Reginald J. Dufour, and Ray S. Whaley*. **206**, 163, 44-F4 (1976)
- Ultraviolet Photometry from the Orbiting Astronomical Observatory. XXIII. The Resonance Lines of Triply Ionized Carbon and Silicon in the Spectra of Hot Stars. *Robert J. Panek and Blair D. Savage*. **206**, 167, 44-F8 (1976)
- The Ultraviolet Spectrum of Beta Lyrae. II. *M. Hack, J. B. Hutchings, Y. Kondo, G. E. McCluskey, and M. K. Tulloch*. **206**, 777, 54-A11 (1976)
- Luminosity Effects in the Ultraviolet Spectrum of B5-B6 Stars. *Anne B. Underhill and Ernest Silversmith*. **206**, L56, 44-E11 (1976)
- Skylab* Ultraviolet Stellar Spectra: A New White Dwarf, HD 149499 B. *S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and M. Laget*. **206**, L71, 47-F4 (1976)
- The Behavior of the Mg II Doublet Emissions near 2800 Å Observed in Late-Type Giants. *Y. Kondo, T. H. Morgan, and J. L. Modisette*. **207**, 167, 59-G2 (1976)
- Upper Limits to the Interstellar Radiation Field between 775 and 1050 Å. *Francesco Paresce and Stuart Bowyer*. **207**, 432, 64-A1 (1976)
- The Far-Ultraviolet Spectrum of Sirius B from *Copernicus*. *Malcolm P. Savedoff, H. M. Van Horn, F. Wesemael, L. H. Auer, T. P. Snow, and D. G. York*. **207**, L45, 62-D12 (1976)
- Excitation and Ionization of Helium in the Solar Atmosphere.

Ultraviolet: Spectra—Continued

- Eugene H. Avrett, Jorge E. Vernazza, and Jeffrey L. Linsky. **207**, L199, 72-E7 (1976)
- Skylab Ultraviolet Stellar Spectra: Emission Lines from the Beta Lyrae System. Y. Kondo, S. B. Parsons, K. G. Henize, J. D. Wray, G. F. Benedict, and G. E. McCluskey. **208**, 468, 80-A9 (1976)
- The Quiet Sun Chromospheric Network Observed from Skylab. U. Feldman, G. A. Doschek, and N. P. Patterson. **209**, 270, 90-G6 (1976)
- Lyman-Alpha Observations of Comet Kohoutek 1973 XII with Copernicus. J. F. Drake, E. B. Jenkins, J. L. Bertaux, M. Festou, and H. U. Keller. **209**, 302, 91-B10 (1976)
- The Behavior of the Mg II Doublet Features near 2800 Å Observed in F, A, and B Supergiants. Y. Kondo, T. H. Morgan, and J. L. Modisette. **209**, 489, 94-F6 (1976)
- Plasma Diagnostic Techniques in the Ultraviolet: The C III Density-Sensitive Lines in the Sun. A. K. Dupree, P. V. Foukal, and Carole Jordan. **209**, 621, 96-B9 (1976)
- Rotational Analysis of the First Negative System of $^{12}\text{C } ^{16}\text{O}^+$. J. D. Janjic and D. S. Pešić. **209**, 642, 96-D3 (1976)
- Absolute Solar Ultraviolet Intensities and Their Variations with Solar Activity. I. The Wavelength Region 1750-2100 Å. G. E. Brueckner, J. -D. F. Bartoe, O. Kjeldseth Moe, and M. E. VanHoosier. **209**, 935, 100-G13 (1976)
- Carbon Production in Comet West 1975n. P. D. Feldman and W. H. Brune. **209**, L45, 92-D2 (1976)
- Circumstellar Matter in the Binary V Puppis. Donald G. York, Brian Flannery, and John Bahcall. **210**, 143, 104-E11 (1976)
- An Analysis of the Ultraviolet Spectrum of the Helium-rich Star HR 3089. John B. Lester. **210**, 153, 104-F7 (1976)
- Absolute Flux Calibration for the Mg II Observations near 2800 Angstroms. Yoji Kondo, James E. Duval, Jerry L. Modisette, and T. H. Morgan. **210**, 713, 113-A6 (1976)
- The Emission-Line Spectrum of a Sunspot in the Far-Ultraviolet. Chung-Chieh Cheng, G. A. Doschek, and U. Feldman. **210**, 836, 114-C7 (1976)
- Oscillator Strengths in the Mg Isoelectronic Sequence. G. A. Victor, R. F. Stewart, and C. Laughlin. **31**, 237, 15-D1 (1976) (Abstr. in **206**, 343, 46-E11)
- The Emission-Line Spectrum above the Limb of the Quiet Sun: 1175-1940 Å. G. A. Doschek, U. Feldman, M. E. VanHoosier, and J. -D. F. Bartoe. **31**, 417, 18-E1 (1976) (Abstr. in **206**, 964, 56-A13)
- The Emission-Line Spectrum above the Limb of a Solar Coronal Hole: 1175-1940 Å. U. Feldman, G. A. Doschek, M. E. VanHoosier, and J. D. Purcell. **31**, 445, 18-G1 (1976) (Abstr. in **206**, 965, 56-A14)
- Copernicus Ultraviolet Observations of Mass-Loss Effects in O and B Stars. Theodore P. Snow, Jr. and Donald C. Morton. **32**, 429, 30-A1 (1976) (Abstr. in **209**, 649, 96-D10)
- The Ultraviolet Spectrum of Alpha Lyrae. Rosanna Faraggiana, Margherita Hack, and David S. Leckrone. **32**, 501, 31-B1 (1976) (Abstr. in **209**, 648, 96-D9)

W Virginis Stars: see Stars: Cepheids**X-Rays: Binaries**

- Variations in the Spectra and Pulse Period of GX 301-2. J. H. Swank, R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, and P. J. Serlemitsos. **209**, L57, 96-F4 (1976)
- Pulsating X-Ray Sources: Slowly Rotating Neutron Stars? Susan M. Lea. **209**, L69, 96-G1 (1976)
- On the Stability of the Period of Cygnus X-3. D. R. Parsignault, E. Schreier, J. Grindlay, and H. Gursky. **209**, L73, 96-G5 (1976)
- Periodic Modulation of Three Galactic X-Ray Sources. N. E. White, K. O. Mason, H. E. Huckle, P. A. Charles, and P. W. Sanford. **209**, L119, 101-E5 (1976)
- Orbital Elements and Masses for the SMC X-1/Sanduleak 160 Binary System. F. Primini, S. Rappaport, P. C. Joss, G. W.

Clark, W. Lewin, F. Li, W. Mayer, and J. McClintock. **210**, L71, 111-B10 (1976)

- The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Lauffer, J. McClintock, and D. Zubrod. **210**, L127, 115-A12 (1976)

X-Rays: Bursts

- Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver. **205**, L127, 42-B6 (1976)
- Scattering Model for X-Ray Bursts: Massive Black Holes in Globular Clusters. J. Grindlay and H. Gursky. **205**, L131, 42-B10 (1976)
- Uhuru Observations of the Galactic Plane in 1970, 1971, and 1972. W. Forman, C. Jones, and H. Tananbaum. **206**, L29, 47-C3 (1976)
- The Discovery of X-Ray Bursts from a Region in the Constellation Norma. R. D. Belian, J. P. Conner, and W. D. Evans. **206**, L135, 56-D3 (1976)
- A Fast Transient Source of Hard X-Rays at High Galactic Latitude. S. Rappaport, J. Buff, G. Clark, W. H. G. Lewin, T. Matilsky, and J. McClintock. **206**, L139, 56-D7 (1976)
- Uhuru Observations of a Transient X-Ray Source Associated with the Globular Cluster NGC 6440. W. Forman, C. Jones, and H. Tananbaum. **207**, L25, 62-C6 (1976)
- A Preliminary Sky Map of Brief X-Ray Transients. R. D. Belian, J. P. Conner, and W. D. Evans. **207**, L33, 62-D1 (1976)
- Observations of Intense Cosmic X-Ray Bursts. W. D. Evans, R. D. Belian, and J. P. Conner. **207**, L91, 67-B8 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson. **207**, L95, 67-B12 (1976)
- X-Ray Reverberations and the Giant X-Ray Bursts. Claude R. Canizares. **207**, L101, 67-C3 (1976)
- The Variability and Absorption of the X-Ray Emission from NGC 4151. J. C. Ives, P. W. Sanford, and M. V. Penston. **207**, L159, 72-B9 (1976)
- Spectral Variability in the X-Ray Pulsar GX 1+4. R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **207**, L167, 72-C2 (1976)
- Uhuru Observations of an X-Ray Burst at High Galactic Latitude Centered on the X-Ray Globular Cluster NGC 1851. W. Forman and C. Jones. **207**, L177, 72-C11 (1976)
- X-Ray Observations of the Vela Pulsar: Statistics and Spectrum. S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **208**, L67, 82-B6 (1976)
- Flare from the Perseus Region in Hard X-Rays. F. Fuligni, D. Brini, W. Dusi, and F. Frontera. **208**, L111, 86-F10 (1976)
- Observations of Two X-Ray Flares and the Nearby Source MX1716-31. T. H. Markert, D. E. Backman, and J. E. McClintock. **208**, L115, 86-F13 (1976)
- Evidence for the Binary Nature of A0535+26. S. Rappaport, P. C. Joss, H. Bradt, G. W. Clark, and J. G. Jernigan. **208**, L119, 86-G3 (1976)
- Variations in the Spectra and Pulse Period of GX 301-2. J. H. Swank, R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, and P. J. Serlemitsos. **209**, L57, 96-F4 (1976)
- Uhuru Observations of the Norma X-Ray Burster. J. Grindlay and H. Gursky. **209**, L61, 96-F8 (1976)
- Pulsating X-Ray Sources: Slowly Rotating Neutron Stars? Susan M. Lea. **209**, L69, 96-G1 (1976)
- Periodic Modulation of Three Galactic X-Ray Sources. N. E. White, K. O. Mason, H. E. Huckle, P. A. Charles, and P.

- W. Sanford. **209**, L119, 101-E5 (1976)
- Optical Polarization of Nova Monocerotis 1975 (=A0620-00). Joseph F. Dolan. **210**, 721, 113-B1 (1976)
- Characteristics of Cosmic X-Ray Bursts Observed with the OGO-5 Satellite. S. R. Kane and K. A. Anderson. **210**, 875, 114-F6 (1976)
- Uhuru and Ariel V Observations of 3U 1630-47: A Recurrent Transient X-Ray Source. C. Jones, W. Forman, H. Tananbaum, and M. J. L. Turner. **210**, L9, 106-B8 (1976)
- Discovery of X-Ray Bursts from MXB 1728-34. Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li. **210**, L13, 106-B11 (1976)
- A Model for Repeatedly Bursting X-Ray Sources. R. N. Henriksen. **210**, L19, 106-C2 (1976)
- The Transient X-Ray Source A0620-00: Intensity Variations and Evidence for an 8 Day Periodicity. T. Matilsky, H. V. Bradt, J. Buff, G. W. Clark, J. G. Jernigan, P. C. Joss, B. Laufer, J. McClintock, and D. Zubrod. **210**, L127, 115-A12 (1976)
- X-Rays: General**
- The Dynamics of the Intergalactic Medium in the Vicinity of Clusters of Galaxies. Susan M. Lea. **203**, 569, 9-B3 (1976)
- A Measurement of Fluctuations in the X-Ray Background by Uhuru. Daniel A. Schwartz, Stephen S. Murray, and Herbert Gursky. **204**, 315, 18-A4 (1976)
- Calculation of the Cross Section for C IV-H Charge Exchange: Significance for Interstellar X-Rays/Cosmic-Ray Particles. R. J. Blint, W. D. Watson, and R. B. Christensen. **205**, 634, 36-D2 (1976)
- Consequences of a New Hot Component of the Interstellar Medium. Paul R. Shapiro and George B. Field. **205**, 762, 39-B1 (1976)
- Production of Galactic X-Rays Following Charge-Exchange by Cosmic-Ray Nuclei. William D. Watson. **206**, 842, 54-F7 (1976)
- Time-dependent Radiative Cooling of a Hot, Diffuse Cosmic Gas, and the Emergent X-Ray Spectrum. Paul R. Shapiro and Robert T. Moore. **207**, 460, 64-C1 (1976)
- A Dynamical Model for the Radio Outbursts of Cygnus X-3. A. W. Woodsworth and V. A. Hughes. **208**, 863, 85-E6 (1976)
- Neutral Hydrogen in the Direction of the Small Magellanic Cloud and the Limits on an Extragalactic Soft X-Ray Flux. D. McCammon, S. S. Meyer, W. T. Sanders, and F. O. Williamson. **209**, 46, 88-D9 (1976)
- Stimulated Compton Scattering and Quasar Luminosity. Albert G. Petschek, S. A. Colgate, and Jeffrey D. Colvin. **209**, 356, 93-D5 (1976)
- The Graphite Crystal X-Ray Spectrometer on OSO-8. H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff. **210**, 805, 114-A2 (1976)
- Discovery of X-Ray Bursts from MXB 1728-34. Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li. **210**, L13, 106-B11 (1976)
- Velocity Dispersions for X-Ray Clusters of Galaxies. S. M. Faber and A. Dressler. **210**, L65, 111-B5 (1976)
- Orbital Precession in Hercules X-1. J. E. Deeter and P. E. Boynton. **210**, L133, 115-B3 (1976)
- X-Rays: Sources**
- Metal-rich Globular Clusters in the Galaxy. III. The "X-Ray" Globular Cluster NGC 6441. James E. Hesser and F. D. A. Hartwick. **203**, 97, 2-A1 (1976)
- The 4.8 Hour Variation of Cygnus X-3 at High X-Ray Energies. W. Pietsch, E. Kendziorra, R. Staubert, and J. Trümper. **203**, L67, 8-C6 (1976)
- Effects of Tidal Distortion on Binary-Star Velocity Curves and Ellipsoidal Variation. Robert E. Wilson and Sabatino Sofia. **203**, 182, 3-A2 (1976)
- OSO-7 Observations of the X-Ray Nova 3U 1543-47. Fuk Kwok Li, George F. Sprott, and George W. Clark. **203**, 187, 3-A7 (1976)
- A Search for Optical Counterparts of Nine Galactic X-Rays Sources. A. Davidsen, R. Malina, and S. Bowyer. **203**, 448, 6-F12 (1976)
- Optical Observations of WRA 977. D. J. Bord, D. E. Mook, L. Petro, and W. A. Hiltner. **203**, 689, 10-D2 (1976)
- Polarization of X-Rays from Cygnus X-1: A Test of the Accretion Disk Model. Alan P. Lightman and Stuart L. Shapiro. **203**, 701, 10-E1 (1976)
- X-Ray Nova A0620-00: Celestial Position and Low-Energy Flux. R. Doxsey, G. Jernigan, D. Hearn, H. Bradt, J. Buff, G. W. Clark, J. Delvaille, A. Epstein, P. C. Joss, T. Matilsky, W. Mayer, J. McClintock, S. Rappaport, J. Richardson, and H. Schnopper. **203**, L9, 4-C12 (1976)
- Optical Identification of A0620-00. F. Boley, R. Wolfson, H. Bradt, R. Doxsey, G. Jernigan, and W. A. Hiltner. **203**, L13, 4-D2 (1976)
- Radio Emission from the X-Ray Source A0620-00. Frazer N. Owen, Thomas J. Balonek, John Dickey, Yervant Terzian, and S. T. Gottesman. **203**, L15, 4-D6 (1976)
- Optical Observations of the Recurrent Nova Associated with A0620-00: 1917-1975. Lola J. Eachus, Edward L. Wright, and William Liller. **203**, L17, 4-D8 (1976)
- MX 1313+29: A Compact Source of Very Low Energy X-Rays in Coma Berenices. D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport. **203**, L21, 4-D11 (1976)
- An Ultrasoft X-Ray Source in Coma Berenices. Bruce Margon, Roger Malina, Stuart Bowyer, Ray Cruddace, and Michael Lampton. **203**, L25, 4-E1 (1976)
- The X-Ray Behavior of 3U 1700-37. Keith O. Mason, Graziella Branduardi, and Peter Sanford. **203**, L29, 4-E5 (1976)
- New Observations of Pulsed X-Ray Emission from NP 0532. H. L. Kestenbaum, W. Ku, R. Novick, and R. S. Wolff. **203**, L57, 8-B11 (1976)
- New Results from Long-Term Observations of Cygnus X-1. S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski. **203**, L63, 8-C2 (1976)
- A Two-Temperature Accretion Disk Model for Cygnus X-1: Structure and Spectrum. S. L. Shapiro, A. P. Lightman, and D. M. Eardley. **204**, 187, 15-B1 (1976)
- A Measurement of Fluctuations in the X-Ray Background by Uhuru. Daniel A. Schwartz, Stephen S. Murray, and Herbert Gursky. **204**, 315, 18-A4 (1976)
- The Long-Term Intensity Behavior of Centaurus X-3. E. J. Schreier, K. Swartz, R. Giacconi, G. Fabbiano, and J. Morin. **204**, 539, 20-D2 (1976)
- Studies of the Average Pulse Shape of Centaurus X-3 in the 2-20 KeV Range. M. P. Ulmer. **204**, 548, 20-D12 (1976)
- Parameters of Sanduleak 160 (SMC X-1) by Differential Corrections. Robert E. Wilson and Anne T. Wilson. **204**, 551, 20-E1 (1976)
- Black Holes in X-Ray Binaries: Marginal Existence and Rotation Reversals of Accretion Disks. Stuart L. Shapiro and Alan P. Lightman. **204**, 555, 20-E5 (1976)
- Orbital Evolution of a Singly Condensed, Close Binary by Mass Loss from the Primary and by Accretion Drag on the Condensed Member. M. E. Alexander, W. Y. Chau, and R. N. Henriksen. **204**, 879, 25-E6 (1976)
- Slow Mass Transfer in Semidetached Binaries. J. P. Pratt and P. A. Strittmatter. **204**, L29, 17-C2 (1976)
- The Transient Periodic X-Ray Source in Taurus, A0535+26. H. Bradt, W. Mayer, J. Buff, G. W. Clark, R. Doxsey, D. Hearn, G. Jernigan, P. C. Joss, B. Laufer, W. Lewin, F. Li, T. Matilsky, J. McClintock, F. Primini, S. Rappaport, and H. Schnopper. **204**, L67, 22-A10 (1976)
- High-Energy X-Ray Observations of the Transient Source A0535+26 from a Balloon-borne Telescope. G. R. Ricker, A. Scheepmaker, J. E. Ballintine, J. P. Doty, G. A. Kriss,

X-Rays: General—Continued

- S. G. Ryckman, and W. H. G. Lewin. **204**, L73, 22-B1 (1976)
- Energy Dependence of the Size of the X-Ray Source in the Crab Nebulae. W. Ku, H. L. Kestenbaum, R. Novick, and R. S. Wolff. **204**, L77, 22-B5 (1976)
- Optical Structure of the X-Ray Globular Cluster NGC 6624. Neta A. Bahcall. **204**, L83, 22-B10 (1976)
- The Positions and Proper Motions of HZ Herculis and 12 Neighboring Stars. George Gatewood and Sabatino Sofia. **204**, L89, 22-C3 (1976)
- Detection of X-Ray Emission from the Remnant of the Supernova 1006 A.D. P. Frank Winkler, Jr. and Frank N. Laird. **204**, L111, 27-A2 (1976)
- An Opaque Shell around Hercules X-1? Richard McCray and Frederick K. Lamb. **204**, L115, 27-A6 (1976)
- On the Ultrasoft X-Ray Background. A. Levine, S. Rappaport, R. Doxsey, and G. Jernigan. **205**, 226, 30-D10 (1976)
- The Distribution of the Galactic Compact X-Ray Sources: A Statistical Analysis. Sabatino Sofia and François Wesemael. **205**, 233, 30-E3 (1976)
- An Empirical Comparison of X-Ray and Radio Emission from Supernova Remnants. F. Seward, G. Burginyon, R. Grader, R. Hill, T. Palmieri, P. Stoering, and A. Toor. **205**, 238, 30-E8 (1976)
- Hydrogen and Helium Lines in Theoretical Models of Scorpius X-1 and Cygnus X-2. Mordehai Milgrom and J. I. Katz. **205**, 545, 35-D12 (1976)
- Analysis of a Scorpius X-1 X-Ray Spectrum Obtained with Cooled Silicon (Li) Detectors. John G. Laros and Sidney Singer. **205**, 550, 35-E3 (1976)
- Tidal Circularization of the Binary X-Ray Sources Hercules X-1 and Centaurus X-3. Myron Lecar, J. Craig Wheeler, and Christopher F. McKee. **205**, 556, 35-E9 (1976)
- The Optical and X-Ray Surface Brightness of the Crab Nebula. I. A Cosmic-Ray Diffusion Model. Stephen Lee Weinberg and Joseph Silk. **205**, 563, 35-F2 (1976)
- Three-Color Photometry of HDE 226868: The Optical Counterpart of Cygnus X-1. Daniel F. Lester, Ira G. Nolt, Shirley A. Stearns, Peter Straton, and James V. Radostitz. **205**, 855, 40-B12 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. I. Search for Binary Periodicity. S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski. **205**, L27, 32-B12 (1976)
- The Perseus and Coma Clusters of Galaxies at Energies above 20 keV. A. Scheepmaker, G. R. Ricker, K. Brecher, S. G. Ryckman, J. E. Ballantine, J. P. Doty, P. M. Downey, and W. H. G. Lewin. **205**, L65, 37-A11 (1976)
- Long-Term X-Ray Studies of Scorpius X-1. II. Evidence for Flare-Dominated Intensity Variations. S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski. **205**, L79, 37-B9 (1976)
- Discovery of Intense X-Ray Bursts from the Globular Cluster NGC 6624. J. Grindlay, H. Gursky, H. Schnopper, D. R. Parsignault, J. Heise, A. C. Brinkman, and J. Schrijver. **205**, L127, 42-B6 (1976)
- Scattering Model for X-Ray Bursts: Massive Black Holes in Globular Clusters. J. Grindlay and H. Gursky. **205**, L131, 42-B10 (1976)
- Evidence for an 11.2 Day Periodicity from Cygnus X-2. S. S. Holt, E. A. Boldt, P. J. Serlemitsos, and L. J. Kaluzienski. **205**, L143, 42-C6 (1976)
- Precession of the Nodes in Some Triple Stellar Systems. Tsevi Mazeh and Jacob Shaham. **205**, L147, 42-C9 (1976)
- Fabry-Perot Observations of Peculiar Hydrogen-Emission Nebulae. Hugh M. Johnson. **206**, 243, 45-E1 (1976)
- Spectroscopic Observations of the Candidate Star Coincident with A0620-00. Theodore Gull, Donald G. York, Theodore P. Snow, Jr., and Karl G. Henize. **206**, 260, 45-F6 (1976)
- OSO-7 Observations of High Galactic Latitude X-Ray Sources. T. H. Markert, C. R. Canizares, G. W. Clark, F. K. Li, P. L. Northridge, G. F. Sprott, and G. F. Wargo. **206**, 265, 45-F13 (1976)
- The Effect of Radiation Pressure on Accretion Disks around Black Holes. Laura Maraschi, Cesare Reina, and Aldo Treves. **206**, 295, 46-B3 (1976)
- Soft X-Rays from the Large Magellanic Cloud: Implications on the Origin of the Diffuse X-Ray Background. K. S. Long, P. C. Agrawal, and G. P. Garmire. **206**, 411, 48-F7 (1976)
- Transfer of X-Rays through a Spherically Symmetric Gas Cloud. Stephen Hatchett, James Buff, and Richard McCray. **206**, 847, 54-F12 (1976)
- Analysis of Periodic Optical Variability in the Compact X-Ray Source Hercules X-1/HZ Herculis. J. Deeter, L. Crosa, D. Gerend, and P. Boynton. **206**, 861, 55-A1 (1976)
- Spectroscopic Properties of HZ Herculis in Model Calculations. Mordehai Milgrom. **206**, 869, 55-A9 (1976)
- X-Ray Heating. II. The Reflection Effect in Scorpius X-1. Stephen C. Perrenod. **206**, 876, 55-B2 (1976)
- Improved Position for the X-Ray Source Associated with the Globular Cluster NGC 6441. J. E. Grindlay, H. Schnopper, E. Schreier, H. Gursky, and D. R. Parsignault. **206**, L23, 47-B11 (1976)
- Discovery of X-Ray Pulsations in SMC X-1. R. Lucke, D. Yentis, H. Friedman, G. Fritz, and S. Shulman. **206**, L25, 47-B13 (1976)
- Uhuru Observations of the Galactic Plane in 1970, 1971, and 1972. W. Forman, C. Jones, and H. Tananbaum. **206**, L29, 47-C3 (1976)
- UCSD OSO-7 Observations of the Hard X-Ray Spectrum and Variability of Centaurus A. R. F. Mushotzky, W. A. Baity, Wm. A. Wheaton, and L. E. Peterson. **206**, L45, 47-D6 (1976)
- Radial-Velocity Variations of Scorpius X-1 Emission Lines. D. J. Bord, R. J. Messina, D. E. Mook, and W. A. Hiltner. **206**, L49, 47-D10 (1976)
- Sirius B: A Thermal Soft X-Ray Source? H. L. Shipman. **206**, L67, 47-F1 (1976)
- MX 1313+29: A Compact Source of Very Low-Energy X-Rays in Coma Berenices: Erratum. D. R. Hearn, J. A. Richardson, H. V. D. Bradt, G. W. Clark, W. H. G. Lewin, W. F. Mayer, J. E. McClintock, F. A. Primini, and S. A. Rappaport. **206**, L73, 47-F8 (1976) (Orig. paper in **203**, L21, 4-D11)
- Discovery of a 283-Second Periodic Variation in the X-Ray Source 3U 0900-40. J. E. McClintock, S. Rappaport, P. C. Joss, H. Bradt, J. Buff, G. W. Clark, D. Hearn, W. H. G. Lewin, T. Matlisky, W. Mayer, and F. Primini. **206**, L99, 52-C4 (1976)
- The 3U 0900-40 Binary System: Orbital Elements and Masses. S. Rappaport, P. C. Joss, and J. E. McClintock. **206**, L103, 52-C8 (1976)
- The Origin of X-Ray Sources in Clusters of Galaxies. J. I. Katz. **207**, 25, 58-C3 (1976)
- Further Joint X-Ray, Infrared, and Radio Observations of Cygnus X-3. K. O. Mason, E. E. Becklin, L. Blankenship, R. L. Brown, J. Elias, R. M. Hjellming, K. Matthews, P. G. Murdin, G. Neugebauer, P. W. Sanford, and S. P. Willner. **207**, 78, 58-G1 (1976)
- A Model for the Radio Outbursts of Cygnus X-3. E. R. Seaquist. **207**, 88, 59-A1 (1976)
- Evidence for "Thermal" X-Rays from the Crab Nebula. A. Toor, T. M. Palmieri, and F. D. Seward. **207**, 96, 59-A9 (1976)
- The Two Optical Candidates of LMC X-2. M. Pakull and N. V. Vidal. **207**, 329, 61-E1 (1976)
- High-Energy X-Ray Observations of the Southern Sky. G. R. Ricker, M. Gerassimenko, J. E. McClintock, and S. G. Ryckman. **207**, 333, 61-E5 (1976)
- An X-Ray Survey of BL Lacertae Objects. Bruce Margon, Stuart Bowyer, T. W. Jones, Arthur Davidsen, Keith O.

- Mason, and Peter W. Sanford. **207**, 359, 63-B6 (1976)
- Search for X-Ray Emission from BL Lacertae Objects and Nearby Seyfert Galaxies. M. P. Ulmer and S. S. Murray. **207**, 364, 63-B11 (1976)
- Infrared Emission from A0620-00. S. G. Kleinmann, K. Brecher, and W. H. Ingham. **207**, 532, 65-B1 (1976)
- X-Ray Evidence for the Supernova Origin of the North Polar Spur. R. G. Cruddace, H. Friedman, G. Fritz, and S. Shulman. **207**, 888, 70-B6 (1976)
- Soft X-Ray Profile and Spectrum of the Supernova Remnant IC 443. Roger Malina, Michael Lampton, and Stuart Bowyer. **207**, 894, 70-B11 (1976)
- On the Origin of Optical Emission Lines in Spectra of X-Ray Binaries. Mordehai Milgrom. **207**, 902, 70-C5 (1976)
- Spectroscopic Analysis of Scorpius X-1. David Crampton, Anne P. Cowley, J. B. Hutchings, and C. Kaar. **207**, 907, 70-C10 (1976)
- Soft X-Rays from Hercules X-1 During the "Off" State. G. Fritz, S. Narayan, S. Shulman, D. Yentis, H. Friedman, A. Davidsen, R. Henry, and W. Snyder. **207**, L29, 62-C11 (1976)
- Gas Dynamics of Semidetached Binaries. II. The Vertical Structure of the Stream. Stephen H. Lubow and Frank H. Shu. **207**, L53, 62-E6 (1976)
- The Discovery of Rapidly Repetitive X-Ray Bursts from a New Source in Scorpius. W. H. G. Lewin, J. Doty, G. W. Clark, S. A. Rappaport, H. V. D. Bradt, R. Doxsey, D. R. Hearn, J. A. Hoffman, J. G. Jernigan, F. K. Li, W. Mayer, J. McClintock, F. Primini, and J. Richardson. **207**, L95, 67-B12 (1976)
- Preliminary Photometry of the X-Ray Globular Cluster NGC 6624. M. H. Liller and W. Liller. **207**, L109, 67-C11 (1976)
- Observations with a High-Resolution Balloon-borne Gamma-Ray Telescope. S. P. McKechnie, K. E. Mount, and D. Ramsden. **207**, L151, 72-B2 (1976)
- X-Ray Structure of the Puppis Supernova Remnant. R. C. Catura and L. W. Acton. **207**, L163, 72-B13 (1976)
- Optical Structure of the X-Ray Globular Clusters NGC 6440 and NGC 6441. Neta A. Bahcall and Mark A. Hausman. **207**, L181, 72-D1 (1976)
- Comments on the Optical Counterpart of the X-Ray Source 3U 0352+30. Thomas J. Moffett and Thomas G. Barnes III. **207**, L185, 72-D7 (1976)
- The X-Ray Structure of the Perseus Cluster of Galaxies. R. S. Wolff, R. J. Mitchell, P. A. Charles, and J. L. Culhane. **208**, 1, 74-A4 (1976)
- Search for X-Ray Emission from Globular Clusters Using Uhuru Data. M. P. Ulmer, S. S. Murray, H. Gursky, and J. N. Bahcall. **208**, 47, 74-D11 (1976)
- Parameter Estimation in X-Ray Astronomy. Michael Lampton, Bruce Margon, and Stuart Bowyer. **208**, 177, 75-G9 (1976)
- The Heating Effect in Scorpius X-1. Mordehai Milgrom. **208**, 191, 76-A10 (1976)
- Infrared Observations of NGC 5128. G. L. Grasdalén and R. R. Joyce. **208**, 317, 78-D3 (1976)
- The Geometry of the Eclipse of a Pointlike Star by a Roche-Lobe-Filling Companion. Gary A. Chanan, John Middleditch, and Jerry E. Nelson. **208**, 512, 80-E1 (1976)
- Returning Radiation in Accretion Disks around Black Holes. Chris Cunningham. **208**, 534, 80-F11 (1976)
- Studies of Optical Pulsations from HZ Herculis/Hercules X-1: A Determination of the Mass of the Neutron Star. John Middleditch and Jerry Nelson. **208**, 567, 81-B2 (1976)
- Accretion by Galaxy Clusters and the Relationship between X-Ray Luminosity and Velocity Dispersion. Joseph Silk. **208**, 646, 83-A11 (1976)
- Soft X-Ray Emission in Eridanus: An Old Supernova Remnant? S. Narayan, S. Shulman, H. Friedman, and G. Fritz. **208**, 718, 84-A5 (1976)
- Dynamical Effects of Possible Solid Cores in Neutron Stars and Degenerate Dwarfs. G. Baym, D. Q. Lamb, and F. K. Lamb. **208**, 829, 85-D13 (1976)
- Survey of Intensity Variability of Strong Galactic X-Ray Sources from Uhuru. W. Forman, C. Jones, and H. Tananbaum. **208**, 849, 85-D5 (1976)
- Search for X-Ray Line Emission from A0620-00. H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff. **208**, L27, 77-B13 (1976)
- Optical Study of the X-Ray Binary Hercules X-1. Richard H. St. John. **208**, L31, 77-C3 (1976)
- Optical Pulsations in HZ Herculis. V. Pulse-Resolved Spectrophotometry. Bruce Margon, Arthur Davidsen, and Stuart Bowyer. **208**, L35, 77-C7 (1976)
- Evidence for a Central Massive Object in the X-Ray Cluster M15. Barry Newell, G. S. Da Costa, and John Norris. **208**, L55, 82-A10 (1976)
- A New Luminosity Limit for Spherical Accretion onto Compact X-Ray Sources. Jeremiah P. Ostriker, Richard McCray, Robert Weaver, and A. Yahil. **208**, L61, 82-B1 (1976)
- Evidence for a 16.6 Day Period from Circinus X-1. L. J. Kaluzienski, S. S. Holt, E. A. Boldt, and P. J. Serlemitsos. **208**, L71, 82-B9 (1976)
- Flare from the Perseus Region in Hard X-Rays. F. Fuligni, D. Brini, W. Dusi, and F. Frontera. **208**, L111, 86-F10 (1976)
- Observations of Two X-Ray Flares and the Nearby Source MX1716-31. T. H. Markert, D. E. Backman, and J. E. McClintock. **208**, L115, 86-F13 (1976)
- Evidence for the Binary Nature of A0535+26. S. Rappaport, P. C. Joss, H. Bradt, G. W. Clark, and J. G. Jernigan. **208**, L119, 86-G3 (1976)
- Measurement of the X-Ray Polarization of the Crab Nebula. M. C. Weisskopf, G. G. Cohen, H. L. Kestenbaum, K. S. Long, R. Novick, and R. S. Wolff. **208**, L125, 86-G8 (1976)
- Spectrum and Origin of X- and Gamma-Ray Diffuse Background. Robert Rocchia, René Ducros, and Bernard Gaffet. **209**, 350, 93-C7 (1976)
- Propagation of Blast Waves. A. Cavaliere and A. Messina. **209**, 424, 94-B1 (1976)
- An Extrasolar Extreme-Ultraviolet Object. II. The Nature of HZ 43. Bruce Margon, James Liebert, George Gatewood, Michael Lampton, Hyron Spinrad, and Stuart Bowyer. **209**, 525, 95-B4 (1976)
- Spectrophotometry of the X-Ray Binary HZ Herculis. J. B. Oke. **209**, 547, 95-C13 (1976)
- The 35 Day Cycle of Hercules X-1. Anthony J. Burke. **209**, 556, 95-D8 (1976)
- Optical Clues to the Nature of Hercules X-1/HZ Herculis. D. Gerend and P. E. Boynton. **209**, 562, 95-E1 (1976)
- The Eclipse Duration of the X-Ray Pulsar 3U 0900-40. Yoram Avni. **209**, 574, 95-E13 (1976)
- Soft X-Ray Morphology of the Virgo, Coma, and Perseus Clusters of Galaxies. Roger Malina, Michael Lampton, and Stuart Bowyer. **209**, 678, 98-C2 (1976)
- The Pulsational Properties of High-Luminosity Degenerate Stars with Helium Burning near the Surface. Edward M. Sion and Samuel C. Vila. **209**, 850, 100-A5 (1976)
- Optical Search for GX 17+2. A. Hoag and J. M. Weisberg. **209**, 908, 100-E12 (1976)
- Radio-Optical Candidates for the High-Latitude X-Ray Sources 3U 1555+27 and 3U 1809+50. Neta A. Bahcall, D. E. Harris, and R. G. Strom. **209**, L17, 92-B3 (1976)
- Detection of an Extreme-Ultraviolet Source in the Southern Sky. Patrick Henry, Stuart Bowyer, C. G. Rapley, and J. L. Culhane. **209**, L29, 92-C2 (1976)
- Uhuru Observations of the Norma X-Ray Burster. J. Grindlay and H. Gursky. **209**, L61, 96-F8 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **209**, L65, 96-F12 (1976)
- A Soft X-Ray Map of the Perseus Cluster of Galaxies.

X-Rays: General—Continued

- Webster Cash, Roger F. Malina, and Richard S. Wolff. **209**, L111, 101-D7 (1976)
- Periodic Modulation of Three Galactic X-Ray Sources. N. E. White, K. O. Mason, H. E. Huckle, P. A. Charles, and P. W. Sanford. **209**, L119, 101-E5 (1976)
- Uhuru Observations of 4U 1608-52: The "Steady" X-Ray Source Associated with the X-Ray Burst Source Norma. H. Tananbaum, Lola J. Chaisson, W. Forman, C. Jones, and T. A. Matilsky. **209**, L125, 101-E13 (1976)
- Uhuru Observations of Hercules X-1 during the Low State of the 35-Day Cycle. C. Jones and W. Forman. **209**, L131, 101-F6 (1976)
- Observations of High-Latitude X-Ray Sources with the Uhuru Satellite. S. S. Murray and M. P. Ulmer. **210**, 230, 105-E1 (1976)
- A Possible Mechanism for Mass Transfer in X-Ray Binary Systems with OB Supergiant Companions. Marvin L. Alme and James R. Wilson. **210**, 233, 105-E4 (1976)
- The Variable Linear Polarization of Cygnus X-1, 1974-1975 Observations. James C. Kemp, Robert G. Southwick, and Richard J. Rudy. **210**, 239, 105-E10 (1976)
- Detection of Nuclear Gamma Rays from Centaurus A. R. D. Hall, C. A. Meegan, G. D. Walraven, F. T. Djuth, and R. C. Haymes. **210**, 631, 112-B4 (1976)
- Energy Spectra of X-Ray Clusters of Galaxies. Yoram Avni. **210**, 642, 112-C1 (1976)
- Accretion onto Magnetized Neutron Stars: Normal Mode Analysis of the Interchange Instability at the Magnetopause. Jonathan Arons and Susan M. Lea. **210**, 792, 113-G3 (1976)
- Uhuru and Ariel V Observations of 3U 1630-47: A Recurrent Transient X-Ray Source. C. Jones, W. Forman, H. Tananbaum, and M. J. L. Turner. **210**, L9, 106-B8 (1976)
- Discovery of X-Ray Bursts from MXB 1728-34. Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li. **210**, L13, 106-B11 (1976)
- A Model for Repeatedly Bursting X-Ray Sources. R. N. Henriksen. **210**, L19, 106-C2 (1976)
- Detection of Soft X-Ray Emission from an Unidentified Source at High Galactic Latitude. D. R. Hearn, J. A. Richardson, and G. W. Clark. **210**, L23, 106-C6 (1976)
- Detection of X-Rays from Algol (β Persei). H. W. Schnopper, J. P. Delvaille, A. Epstein, H. Helmken, S. S. Murray, G. Clark, G. Jernigan, and R. Doxsey. **210**, L75, 111-C1 (1976)
- The Infrared Source near the Rapid-Burst X-Ray Source MXB 1730-335. D. E. Kleinmann, S. G. Kleinmann, and E. L. Wright. **210**, L83, 111-C10 (1976)
- Comments on the Optical Counterpart of the X-Ray Source 3U 0352+30: Erratum. Thomas J. Moffett and Thomas G. Barnes III. **210**, L115, 111-F3 (1976) (Orig. paper in **207**, L185, 72-D7)
- X-Rays: Spectra**
- The 4.8 Hour Variation of Cygnus X-3 at High X-Ray Energies. W. Pietsch, E. Kendziorra, R. Staubert, and J. Trumper. **203**, L67, 8-C6 (1976)
- An Ultrasoft X-Ray Source in Coma Berenices. Bruce Margon, Roger Malina, Stuart Bowyer, Ray Cruddace, and Michael Lampton. **203**, L25, 4-E1 (1976)
- An Observation of the Diffuse Soft X-Ray/Extreme-Ultraviolet Background. Webster Cash, Roger Malina, and Robert Stern. **204**, L7, 17-A8 (1976)
- High-Energy X-Ray Observations of the Transient Source A0535+26 from a Balloon-borne Telescope. G. R. Ricker, A. Scheepmaker, J. E. Ballantine, J. P. Doty, G. A. Kriss, S. G. Ryckman, and W. H. G. Lewin. **204**, L73, 22-B1 (1976)
- On the Ultrasoft X-Ray Background. A. Levine, S. Rappaport, R. Doxsey, and G. Jernigan. **205**, 226, 30-D10 (1976)
- Analysis of a Scorpius X-1 X-Ray Spectrum Obtained with Cooled Silicon (Li) Detectors. John G. Laros and Sidney Singer. **205**, 550, 35-E3 (1976)
- X-Ray Spectra of the Puppis A and the Vela Supernova Remnants. W. E. Moore and G. P. Garmire. **206**, 247, 45-E5 (1976)
- X-Ray Spectra of Cassiopeia A and Tycho's Supernova Observed with Ariel-5. P. J. N. Davison, J. L. Culhane, and R. J. Mitchell. **206**, L37, 47-C12 (1976)
- Iron Line Emission from a High-Temperature Plasma in Cassiopeia A. S. H. Pravdo, R. H. Becker, E. A. Boldt, S. S. Holt, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **206**, L41, 47-D2 (1976)
- UCSD OSO-7 Observations of the Hard X-Ray Spectrum and Variability of Centaurus A. R. F. Mushotzky, W. A. Baity, Wm. A. Wheaton, and L. E. Peterson. **206**, L45, 47-D6 (1976)
- High-Energy X-Ray Observations of the Southern Sky. G. R. Ricker, M. Gerassimenko, J. E. McClintock, and S. G. Ryckman. **207**, 333, 61-E5 (1976)
- Soft X-Ray Profile and Spectrum of the Supernova Remnant IC 443. Roger Malina, Michael Lampton, and Stuart Bowyer. **207**, 894, 70-B11 (1976)
- The X-Ray Structure of the Perseus Cluster of Galaxies. S. Wolff, R. J. Mitchell, P. A. Charles, and J. L. Culhane. **208**, 1, 74-A4 (1976)
- Parameter Estimation in X-Ray Astronomy. Michael Lampton, Bruce Margon, and Stuart Bowyer. **208**, 177, 75-G9 (1976)
- An X-Ray Redshift Measure for Clusters of Galaxies Up to $z \geq 1$. Elihu Boldt. **208**, L15, 77-B1 (1976)
- Search for X-Ray Line Emission from A0620-00. H. L. Kestenbaum, G. G. Cohen, K. S. Long, R. Novick, E. H. Silver, M. C. Weisskopf, and R. S. Wolff. **208**, L27, 77-B13 (1976)
- Spectrum and Origin of X- and Gamma-Ray Diffuse Background. Robert Rocchia, René Ducros, and Bernard Gaffet. **209**, 350, 93-C7 (1976)
- X-Ray Emission from the Supernova Remnant G287.8-0.5. R. H. Becker, E. A. Boldt, S. S. Holt, S. H. Pravdo, R. E. Rothschild, P. J. Serlemitsos, and J. H. Swank. **209**, L65, 96-F12 (1976)
- Energy Spectra of X-Ray Clusters of Galaxies. Yoram Avni. **210**, 642, 112-C1 (1976)
- Discovery of X-Ray Bursts from MXB 1728-34. Jeffrey A. Hoffman, Walter H. G. Lewin, John Doty, David R. Hearn, George W. Clark, Garrett Jernigan, and Fuk Kwok Li. **210**, L13, 106-B11 (1976)
- Radiation from a Hot, Thin Plasma from 1 to 250 Å. Takako Kato. **30**, 397, 8-A2 (1976) (Abstr. in **205**, 309, 31-C11)
- X-Rays: Variable: see X-Rays Bursts**
- Zeeman Effect**
- Energy Spectrum of Hydrogen-Like Atoms in a Strong Magnetic Field: Erratum. G. L. Surmelian and R. F. O'Connell. **204**, 311, 16-D8 (1976) (Orig. paper in **190**, 741, 37-D13)
- Nonhomologous Contraction and Equilibria of Self-gravitating, Magnetic Interstellar Clouds Embedded in an Intercloud Medium: Star Formation. II. Results. Telemachos Ch. Mouschovias. **207**, 141, 59-E2 (1976)
- H α Polarization and Line Profiles in White Dwarfs with Strong Magnetic Fields. Ermanno F. Borra. **209**, 858, 100-B1 (1976)
- Observations of the Transverse Zeeman Effect in the Magnetic Star Beta Coronae Borealis: Evidence for the Oblique Rotator Model. Ermanno F. Borra and Arthur H. Vaughan. **210**, L145, 115-C1 (1976)
- Zodiacal Light**

Glossary of Astronomy and Astrophysics

Compiled by Jeanne Hopkins; with a foreword by S. Chandrasekhar

"Astronomers, and astronomy writers, need a book such as this. We must treasure it, and work together to ensure that it becomes as widely acceptable as possible."—Ian Ridpath, *The New Scientist*

"... it is the best available that I know of, and it should be very useful indeed; certainly it is well worth its cost to scientific investigators, teachers, and writers."—George O. Abell, *Sky and Telescope*

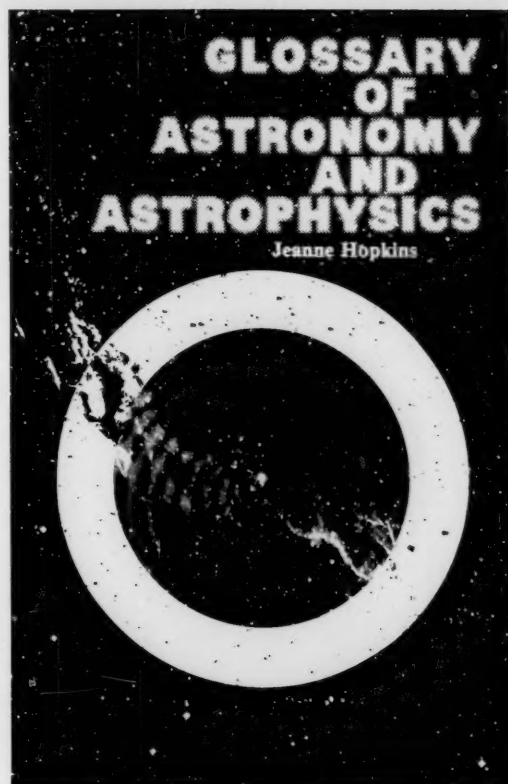
"I personally will place it on the shelf next to the books I use most frequently: Webster's Dictionary, Fowler's *Modern English Usage*, and Strunk and White's *Elements of Style*."—Dimitri Mihalas, National Center for Atmospheric Research

The *Glossary of Astronomy and Astrophysics*, published under the auspices of *The Astrophysical Journal*, is a concise, up-to-date dictionary of 2,000 commonly employed astronomical and astrophysical terms and theoretical concepts. In addition to covering terms from all branches of these two disciplines, the *Glossary* lists definitions from such related fields as physics and chemistry. It is especially suited to students, researchers, editors, and science writers, and a necessary addition to the shelves of any reference library.

Assembled by Jeanne Hopkins, since 1967 chief manuscript editor of *The Astrophysical Journal*, the entries are often transcriptions of definitions from articles published in the *Journal*. Thus the *Glossary* has, in effect, been compiled with the assistance of the distinguished astronomers who have appeared in the *Journal's* pages over the past decade.

A 25% discount to subscribers

The *Glossary of Astronomy and Astrophysics*, published in January 1976, is available to subscribers of *The Astrophysical Journal* or the *Supplement Series* for \$8.25, a 25% discount off the regular price of \$10.95. To purchase your copy, please use the attached order form.



1976
Cloth

ISBN: 0-226-35172-6
LC: 75-14799

6 x 9
176 pages

Order Form Glossary of Astronomy and Astrophysics

- ☐ I am a subscriber to *The Astrophysical Journal* or *The Astrophysical Journal Supplement Series*. Please send me _____ copies of the *Glossary* (ISBN: 0-226-35172-6) at \$8.25 each.
- ☐ Please send me _____ copies of the *Glossary* at \$10.95 each.
Illinois residents add 5% sales tax.

Name _____
Address _____
City _____ State/Country _____ Zip _____

Please mail with your check or purchase order to *Glossary of Astronomy and Astrophysics*, The University of Chicago Press, 11030 Langley Avenue, Chicago, Illinois 60628

The
Astrophysical Journal
and
The
Astrophysical Journal
Supplement Series
on Microfiche

Since 1974 The Astrophysical Journal and The Astrophysical Journal Supplement Series have been available to subscribers in convenient microfiche editions. The size and frequency of the Journals and their high mailing costs make microfiche an ideal format and an attractive alternative to conventional paper editions.

Microfiche is extremely compact and therefore easy to store and ship. The fiche edition averages four cards per issue; each card measures 105 x 148.75 mm. and contains 49 double pages. Each frame is a 22:1 reduction of the original page (a 25:1 magnification is recommended when reading from a fiche card). Many libraries have microfiche readers available, and various inexpensive and convenient readers can be purchased for individual use. The total weight of an average fiche issue is only 1 oz. compared to 28 oz. in its paper equivalent.

In order to facilitate use of the fiche card edition of The Astrophysical Journal, a paper Table of Contents is mailed with each issue on which both paper paginations and fiche grid coordinates are listed. Furthermore, a similar paper volume index is mailed with every third issue of the Journal.



Combination subscriptions

Annual base subscription rates of the paper or microfiche editions are \$130 for The Astrophysical Journal and \$50 for the Supplement Series. Postage surcharges for the paper editions vary according to destination. For no additional charge, however, microfiche editions are airmailed to foreign subscribers, which greatly expedites their arrival. Reduced annual rates for combination subscriptions to both paper and fiche editions are \$234 for the Journal and \$90 for the Supplement Series. The Journal is published twice monthly; beginning in January 1976 the Supplements will appear monthly.

If you would like more information about the microfiche edition, or if you have any questions about The Astrophysical Journal or Supplement Series, please write to:

The Astrophysical Journal
The University of Chicago Press
5801 South Ellis Avenue
Chicago, Illinois 60637





